Pocket Guide

ALEXA

SUP 7.0

Table of Contents

Overview 4
Introduction 4
What's new in SUP 7.0? 6
The Home Screen 8
Home Screen Soft Buttons 9
Icons on Home Screen 12
MON OUT Icons 14
Recording formats 16
Output Overview 18
ARRIRAW uncompressed 19
ARRIRAW capable software solutions 20
ProRes 21
DNxHD 23
Exposure Index 24
Working with ND filters 26
False Color Exposure Check 27

Working with ALEXA 28
Understanding "Gamma" 28
Rec 709 28
Log C 30
Shooting in Log C 30
Look Files in the camera 34
Look Files in a non-destructive workflow 36
Legal and Extended Range 38
p and psf 39
Metadata Overview 40
Licenses 42

ALEXA Preshoot Checklist 44
Recording on SxS PRO cards 45
Recording High Speed 48
Recording ARRIRAW uncompressed 50
ALEXA in a 3D Sync configuration 52
ALEXA M fiber maintenance 53

Specifications and Reference 54
Technical Specs 54
Menu Settings & Button Functions 70

ARRI Lenses 84
ARRI/ZEISS Master Prime lenses 84
ARRI/ZEISS Ultra Prime lenses 86
ARRI/ZEISS LDS Ultra Prime lenses 88
ARRI/FUJINON Alura Zooms 90
ARRI/ZEISS Master Macro 92

Resources and Contacts 94
ARRI Sales Contacts 94
ARRI Service Contacts 96
ARRI Digital Workflow Solutions 98
Online Resources 99

Overview

Introduction

Welcome to the Pocket Guide for the ALEXA family of cameras, which contains important preproduction and production information for an ALEXA shoot. The ALEXA platform has been designed with ease of use and user-friendliness in mind; the menu and controls are simple and intuitive, so the best way to learn ALEXA is to get your hands on the real thing. However, carrying this guide with you and combining it with other resources such as the ALEXA manual at www.arri.com/alexa/downloads or the interactive ALEXA Camera Simulator at www.arri.com/alexa/tools will ensure your readiness to take full advantage of the camera's unique and versatile features.

ALEXA – the original

The ALEXA family

ALEXA Plus/Plus 4:3 – the all-rounder

ALEXA M – the specialist

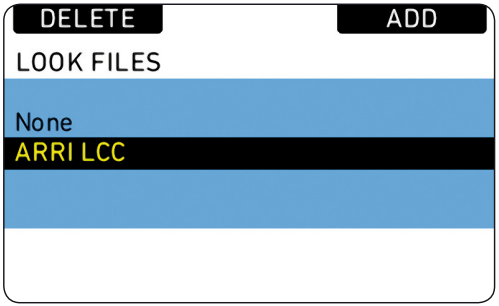
ALEXA Studio – the flagship

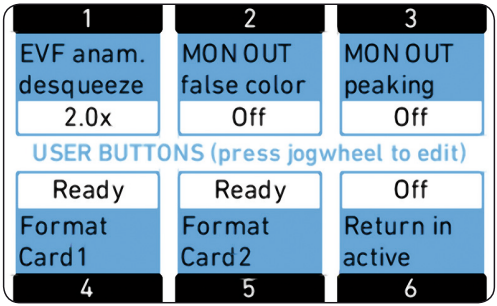
What's new in SUP 7.0?

SUP 7.0 brings important new features to your ALEXA that further improve the camera's image quality, enable in-camera 2K recording and offer a better user experience. All new ALEXA cameras will have this SUP installed and all existing cameras can be upgraded to this SUP.

Here is an overview of the new features introduced since SUP 6.1:

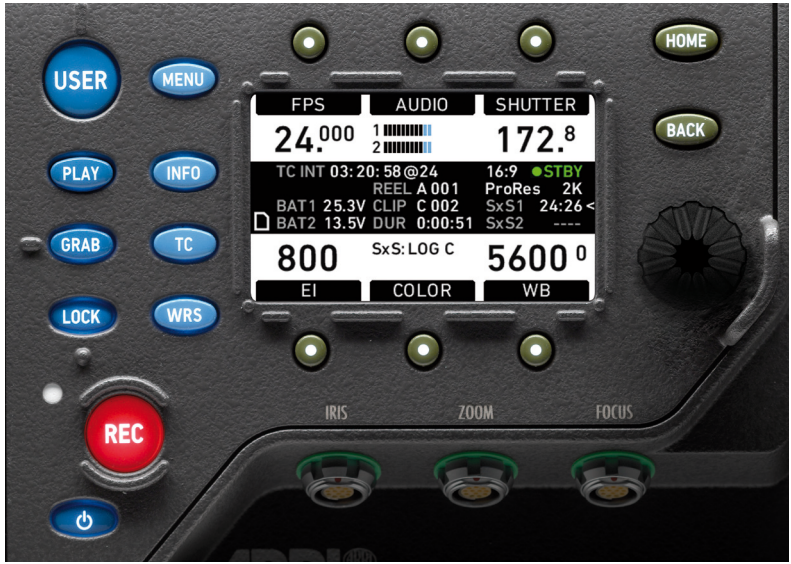
- New and improved in-camera de-Bayering (ADA-3 HW)
- New and improved high speed de-Bayering
- ProRes 2K recording in 16:9 and 4:3 aspect ratio
  See chapter "Recording formats" on page 16 for more information
- Faster 16:9/4:3 sensor mode switching
- Restructured and more lucid status display on EVF and MON OUT
- Cleaner camera menus
- Added MON OUT Clone option for REC OUT
- Low Contrast Curve (LCC) Look File included as part of the SUP
- New 6th user button
- Film matrix and DCI P3 gamma option removed
- DNxHD 444 recording (SUP 7.1 feature)





New for SUP 7.0: LCC look file built-in and 6th button available via “USER” menu

The Home Screen



Home Screen Soft Buttons

The soft buttons lead to screens where the respective settings can be changed. In the home screen, the following info is displayed:

FPS: Set sensor frame rate

AUDIO: When audio is active, audio levels are shown. Audio can also be switched OFF, or DISABLED (when the sensor is not running at sync-sound speed)

SHUTTER: Set shutter angle (and turn mirror shutter on/off for ALEXA Studio)

EI: Set exposure index (and insert internal ND filter for ALEXA Studio)

COLOR: Set gamma for REC OUT and SxS image paths. If REC and/or SxS icons have a blue background, a look is active on this image path.

WB: Set white balance, consisting of a Kelvin value for red-blue correction and a CC shift for green-magenta correction (shown as exponent).

ALEXA Studio Icons

Name	Icon	Description
Mirror Shutter	MS	Flashing Icon when the Mirror Shutter is spinning.
View Position	V	Mirror Shutter in View position
Gate Position	G	Mirror Shutter in Gate position
ND filter	ND	ND filter active

Home Screen Center Bar

TC	Displays current timecode including source (INT=internal or EXT=external source). Frames are not displayed, instead the time base of the timecode is shown in small digits.
MASTER	Camera is set to Ext sync: MASTER
SLAVE	Camera is set to Ext sync: SLAVE
	Settings sync is active
BAT 1	Voltage level of power source present at BAT connector, or percentage of remaining capacity of attached battery if it transmits this information.
BAT 2	Voltage level of battery attached to top and/or back onboard battery adapter, or percentage of remaining capacity of attached battery if it transmits this information.
REEL	Identifies current reel. Consists of camera index and reel counter.
CLIP	Identifies current clip. Consists of clip index and clip counter.
DUR	Duration of current clip during recording or length of last recorded clip during standby. Shown as h:mm:ss.

Home Screen Center Bar

16:9	Displays active sensor mode (16:9 or 4:3).
ProRes 2K	Displays active codec (ProRes or DNxHD and SxS resolution (HD or 2K).
SxS 1 24:26	Remaining capacity of card in SxS slot 1 in minutes. Calculated for the set frame rate and codec. Note: these are only approximate values.
SxS 1 INHIB	Card 1 is write protected.
SxS 1 FULL	Card 1 is full.
<	Marks the active card.
• STBY	The camera is in standby and ready to record.
• REC	The camera is recording.
• ERROR	An error occured. Recording is not possible. Press the INFO button for more details. If nothing is shown (neither the red/green bar), the camera works properly, but no SxS PRO card is present for recording.

Icons on Home Screen

Name	Icon	Description
General Warning		Important information waiting on the info screen. Press the INFO button for more details.
General Error		An error occurred. Press the INFO button for more details.
Temperature Warning		Slight sensor temperature offset. Image quality might be affected.
Temperature Error		Great sensor temperature offset. Image quality might be affected seriously.
Lock		Camera is locked.

Name	Icon	Description
SD Card		SD Card present. Turns orange during card access.
Grab		Still frame is being captured to the SD card. A new still frame can only be captured when this is completed.
High Humidity Mode		Sensor is in high humidity mode (= 40° C sensor temperature). Should only be used in very humid conditions (e.g. indoor swimming pool).
WRS Radio		WRS radio is active. Only on ALEXA Plus and Studio.

ALEXA Studio left side. Additional buttons VIEW & GATE for mirror control.

MON OUT Icons

Name	Icon	Description
General Warning		Important information waiting on the info screen. Press the INFO button for more details.
General Error		An error occurred. Press the INFO button for more details.
Temperature Warning		Slight sensor temperature offset. Image quality might be affected.
Temperature Error		Great sensor temperature offset. Image quality might be affected seriously.
Lock		Home screen is locked.
Grab		Stil frame is being captured to the SD card. A new still frame can only be captured when this is completed.

Name	Icon	Description
Peaking		Peaking enables for EVF and/or MON OUT.
Smooth mode		Smooth mode active on EVF.
SxS resolution		Displays current SxS resolution (HD or 2K).
Gamma		Displays Gamma setting for EVF or MON OUT.
Look active		A look is active/burned-in on EVF, MON OUT and/or SxS.
Return IN		Return is active, image from RET/SYNC IN input is shown.

Recording formats

The ALEXA has two slots to host SxS cards for internal recording. You have the choice between two compression types/file formats: either you can record as a ProRes compressed Quicktime *.mov or as an MXF-wrapped DNxHD compressed file. With the availability of SUP 7.1 onboard recording will be extended with an other high quality codec within the DNxHD line: DNxHD 444.
SxS recording also offers a high speed mode in which the sensor can run at frame rates up to 120fps. Maximum quality can be achieved when recording uncompressed ARRIRAW. Therefore an external recording device is needed.
More detailed technical information on the codecs can be found on the following pages.

ProRes 2K recording
With the introduction of SUP 7.0 two additional ProRes recording modes become available: ProRes recording is not limited to HD anymore, but can be recorded in 2K 16:9 or 2K 4:3 mode.
When the camera is switched from HD to 2K resolution, the size of the captured frame changes slightly. This is necessary, so the de-bayering can work with an optimized downscale factor and deliver the best possible 2K image quality.

- Recording ARRIRAW 16:9, HD-Video, ProRes HD and DNxHD uses 2880 x 1620 photosites with a frame size of 23.76 x 13.365 mm
- ProRes 2K 16:9 uses 2868 x 1612 photosites (23.661 x 13.299 mm)
- ARRIRAW 4:3 uses 2880 x 2160 photosites (23.76 x 17,82 mm)
- ProRes 2K 4:3 uses 2868 x 2150 photosites (23.661 x 17,738 mm)

When recording ARRIRAW and ProRes 2K in parallel, it is important to note, that the ARRIRAW frame holds a few more columns and lines of pixels. This is taken into account in the latest release of our ARRIRAW SDK, where the user can select which ARRIRAW frame size will be used to create a 2K image.

ALEXA Recording Matrix

Recording Media		SxS PRO Cards		External recording via T-Link
Output Option		**HD/HD high speed**[1] DNxHD & ProRes	**2K** ProRes	**ARRIRAW** uncompressed
Sensor Mode	16:9	1920x1080 *(0.75-60fps)*	2048x1152 *(0.75-60fps)*	2880x1620 *(0.75-60fps)*
	4:3	–	2048x1536 *(0.75-60fps)*	2880x2160 *(0.75-48fps)*

[1] ProRes 4444 not available in high speed mode

Output Overview

- **2x REC OUT**
  - **T-Link**
    - ARRIRAW uncompressed (16:9 or 4:3)
  - **HD-SDI 16:9**
- **1x or 2x MON OUT**
  - **MON OUT**
- **2x SxS Cards**
  - **Quicktime HD, 2K 16:9 or 4:3**
    - ProRes Proxy
    - ProRes 422 LT
    - ProRes 422
    - ProRes 422 HQ
    - ProRes 4444
  - **MXF 16:9 HD**
    - DNxHD 145
    - DNxHD 175
    - DNxHD 444[1]

[1] SUP 7.1 feature

ARRIRAW uncompressed

ARRIRAW provides the highest quality image output when shooting with ALEXA. It delivers the unprocessed sensor output as uncompressed and unencrypted 12 bit log raw Bayer data. Any steps that are necessary to create a full color image in a given resolution are performed in post.
When shooting for 2K delivery, recording ARRIRAW at 2880 x 1620 pixels and downscaling to a 2K image in post shows visibly better resolution than upscaling from a 1920 x 1080 image. For VFX,
ARRIRAW files can be reconstructed to a 2880 x 1620 full color image, where effects work can be applied with high detail, before the result is downscaled to 2K. ALEXA Studio, ALEXA Plus 4:3 and M models feature the additional 4:3 mode, which delivers ARRIRAW data at 2880 x 2160 pixel Bayer resolution. The taller aspect ratio allows DPs to capture the unique look of true (2x) anamorphic lenses. When shooting with anamorphic lenses, de-squeezing of the master image takes place in post. For viewing, the camera can deliver a de-squeezed image in the viewfinder and over the MON OUT.
To record ALEXA ARRIRAW, a recording device needs to meet certain technical requirements. ARRI introduced the ALEXA ARRIRAW recording certificate, which indicates that a product can reliably record ARRIRRAW data with metadata, deliver a live-processed preview and playback image, and output data that can be processed with the standard ARRIRAW toolkit. The currently certified ARRIRAW recorders are:

- Codex Onboard M
- Codex OnBoard S
- S.two OB-1
- ASTRODESIGN HR-7502-A
- cineFlow cineTake
- Convergent Design Gemini 444

ARRIRAW uncompressed cont.

A product which has been awarded the ALEXA ARRIRAW Processing Certificate is capable of rendering ALEXA ARRIRAW images in a quality that meets ARRI's requirements. Please note that for all image processing parameters (such as sharpness, color etc.) the ARRI SDK, which is also part of the ARRIRAW Converter, is the reference.

ARRIRAW capable software solutions

COMPANY	PRODUCT
Adobe	Premiere Pro
Adobe	Speedgrade
Assimilate	Scratch
Autodesk	Lustre
Autodesk	Flame
Autodesk	Smoke
Black Magic Design	Resolve
Codex Digital	Datapack/Capture Drive Transfer Station M
Colorfront	On-Set Dailies
DigitalFilmTechnology	Flexxity
DVS	Clipster
eyeon	Fusion
FilmLight	Baselight
Gluetools	Toolkit for FCP
Image Systems	Nucoda Filmmaster
MTI Film	Control Dailies
Pandora	Revolution (YoYo)
Quantel	Pablo
SGO	Mistika
Tweak	RV

ProRes

HD and 2K recording
With the release of SUP 7.0, all ALEXA cameras will be capable of recording QuickTime/ProRes 2K files onto SxS cards. The ALEXA and ALEXA Plus offer 2K recording in 16:9 aspect ratio while the ALEXA Plus 4:3, ALEXA M and ALEXA Studio can also capture increased vertical resolution with the 4:3 aspect ratio.

Capturing with the 4:3 aspect ratio is essential for cinemascope productions as it allows using regular 2:1 anamorphic lenses. Additionally, productions shooting with standard spherical lenses can benefit from the 4:3 “open gate” capture mode.

Productions aiming for a DCP delivery do not have to upscale their footage to match the DCP container (2048 x 1080 pixels), but can record native 2K (2048 x 1152). The desired delivery format can be achieved by cropping and/or downscaling.

For more information on using ProRes 2K in different applications, get hold of our “ProRes 2K in Editorial“ white paper available at
www.arri.com/alexa/downloads.

ProRes cont.

Codec	Color Coding	Bit Depth	Data rate (24fps)	Min. rec. time (on 32GB SxS PRO card at 24fps)	Max. fps[2] (on 32GB/64GB SxS PRO card)	Application
ProRes 422 (Proxy)	YCbCr	10	36 Mb/s	1 h 23 min	60/120 fps	On-set monitoring and proxy editing while the master is captured with an external device.
ProRes 422 (LT)	YCbCr	10	82 Mb/s	37 min	60/120 fps	Same as above when a higher image quality is desired.
ProRes 422	YCbCr	10	117 Mb/s	25 min	60/120 fps	Basic television applications if images do not require adjustments in postproduction
ProRes 422 (HQ)	YCbCr	10	176 Mb/s	17 min	60/120 fps	High quality television applications requiring color correction and special effects high speed shots at higher frame rates.
ProRes 4444[1]	RGB	12	264 Mb/s	11 min	40/60 fps	High quality television or cinema applications requiring color correction and/or compositing.

[1] Even though the official name of this codec (pronounced "ProRes four by four") contains four fours, ALEXA records three (444). The fourth digit stands for an alpha channel that can be used in post but has no relevancy for image capture in the camera. ProRes 4444 is not available in High Speed mode.
[2] Valid for HD SxS resolution

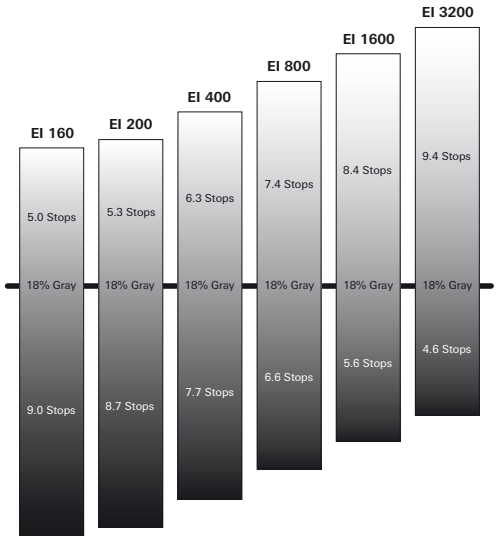
DNxHD

Codec	Color Coding	Bit Depth	Data rate (24fps)	Min. rec. time (on 32GB SxS PRO card at 24fps)	Max. fps (on 32GB/64GB SxS PRO card)	Application
DNxHD 145	YCbCr	8	116 Mb/s	36 min	60/120 fps	Television applications if images do not require adjustments in postproduction.
DNxHD 220x	YCbCr	10	176 Mb/s	24 min	60/120 fps	High quality television applications requiring color correction.
DNxHD 444[1]	RGB	10	352 Mb/s	12 min	60 fps	High quality television or cinema applications requiring color correction and/or compositing.

[1] SUP 7.1 feature

Exposure Index

While ALEXA's 14 stops of exposure latitude and unique highlight handling approaches that of film, there is one major difference between the way film and digital cameras behave: with digital cameras, a change in EI will shift how many stops are available above and below 18% grey – each EI step shifts the location of 18% grey. What is special about ALEXA, however, is that its wide exposure latitude is available at all EI settings.



As a shortcut, we have come up with the following method of writing ALEXA's exposure index:

EI $160^{+5.0}_{-9.0}$ EI $200^{+5.3}_{-8.7}$ EI $400^{+6.3}_{-7.7}$ EI $800^{+7.4}_{-6.6}$ EI $1600^{+8.4}_{-5.6}$ EI $3200^{+9.4}_{-4.6}$

Values next to the exposure index are the number of stops above and below 18% grey. These values are for Log C. Rec 709 has 0.5 stops fewer in the low end at EI 160, 0.4 stops fewer in the low end at EI 200 and 0.2 stops fewer in the low end at EI 400. Otherwise they are the same.

Working with ND filters

While traditional ND filters work great for film, for digital cameras we recommend the use of ND filters that have a built-in far-red blocker. Such filters are available from a number of manufacturers, often called “ND filters with an IR-cut off”. A single filter that combines a ND and a far-red cut off generally yields better results and fewer reflections than a traditional ND filter stacked on top of a separate IR cut off filter.

While the close match between ALEXA’s custom designed IR filter and the sensor’s spectral response makes this issue less critical than with some other digital cameras, it is generally a good idea to only use traditional film ND filters up to an ND 0.9.

The ALEXA Studio has a built-in ND filter with a density of ND 1.3 (4.3 stops), which can be moved in and out of the optical path. The advantage over classical ND filters is that it is located behind the mirror shutter, so the optical viewfinder image stays bright. While not blocking all the IR energy a commercial Infrared blocker would, the Infrared blocking abilities of the ALEXA Studio’s internal ND filter are sufficient for most situations.

False Color Exposure Check

The false color exposure check for the electronic viewfinder and/or MON OUT output measures the camera image, tints certain signal levels in a distinct color and shows the rest as a black-and-white image. The false color exposure check is based on the color processing set for the respective output signal path.

So if you have the viewfinder set to Rec 709, the false color exposure check will be based on the Rec 709 image. If you have the MON OUT at the same time set to Log C, the false color exposure check for MON OUT will be based on Log C.

Color	Level	Description
red	99 – 100%	White clipping
yellow	97 – 99%	Just below white clipping/white shoulder
pink	52 – 56%	One stop over medium gray (Caucasian skin)
green	38 – 42%	18% neutral gray
blue	2.5 – 4.0%	Just above black clipping/black slope
purple	0 – 2.5%	Black clipping

Working with ALEXA

Understanding "Gamma"

Aside from the ARRIRAW output, which contains no color processing, ALEXA can output images in two different color processing methods (commonly called 'gamma'): Rec 709 or Log C.

Rec 709

'Rec 709' is short for the International Telecommunication Union's ITU-R Recommendation BT.709 - the output format for a traditional television workflow. Since Rec 709 is the standard for displaying images on video monitors, Rec 709 images can be shown as they are on monitors or used to create dailies or editing proxies. Additionally, Rec 709 images can be easily processed by most HD video postproduction gear in real time. While providing somewhat reduced choices in color grading, Rec 709 still maintains ALEXA's wide exposure latitude, cinematic look and natural color rendition and offers the fastest workflow for any HD video-based infrastructure.

Color comparison: split image Rec 709/Log C

Understanding “Gamma” cont.

Log C

The “C” in Log C stands for “Cineon”. Cineon was the digital film scanning, processing and recording system developed by Kodak in the 90s. It is also the name of a file format that contains density data from scanned negative film. Density is a logarithmic measure of the opacity of the film. The relation of the density to the film’s exposure (measured in logarithmic units) is called the characteristic curve of the film. Each stock has its own characteristic curve, but the overall shape is always the same. For ALEXA and the D-21, ARRI introduced a log encoding that is similar to scanned negative and because of its similarity, called it “Log C”. While offering great flexibility in color grading, Log C material looks washed out and flat when viewed without any additional processing; therefore it requires a Look Up Table (LUT) being processed in its signal path to appear natural to the human eye.

Shooting in Log C

When scanned film material is brought into color grading, the colorist uses a preview LUT, so the monitor displays the image as it would appear in a projection from film. Log C material from ALEXA can be graded the same way as scanned footage (using preview LUTs). LUTs are required early in production and for a wide range of applications:

<u>On location</u>

The live signal from the camera and recorded material that is played back for review has to be converted using a LUT to deliver a visually correct image on a monitor. Technically, we are not talking about a print simulation LUT anymore, but a conversion LUT, as it is intended to present the image as if the camera were recording with “what you see is what you get” HD video encoding (Rec 709).

- If Log C material is recorded directly onto SxS PRO cards in an ALEXA, the camera's MON OUT is typically set to Rec 709. This activates a conversion LUT, which is applied on the monitoring output.

- Shooting images in Log C delivers the best foundation for the colorist's work, providing the camera's full latitude in an unconfined color space. For output on HDTV, Log C images need to be tone-mapped and transformed into the target color space. This is typically done using a 3D LUT provided through the ARRI LUT Generator at www.arri.com/alexa/tools.

Log C material is best recorded using a 4:4:4 codec (ProRes 4444 or DNxHD 444). The top quality 4:2:2 codecs (ProRes 422 (HQ) and DNxHD 220x) will also provide acceptable results in Log C, but due to the higher compression ratio, grading images recorded with these codecs may exhibit artifacts.

- If an external recorder is used with ALEXA, monitoring is usually hooked up to the recorder rather than the camera, to eliminate the risk of defective cables. The conversion therefore is applied on the recorder's monitoring output.

- When an HD capture system is used to record the camera's output in parallel, it could record Log C and play back using a conversion LUT.

Dailies Creation

For dailies and offline edit, the Log C material needs to be delivered in standard Rec 709 video encoding. The camera metadata, embedded in the HD-SDI signal and QuickTime files, lists all information needed to select the appropriate LUT. While current

Understanding “Gamma” cont.

hardware would allow applying LUTs on the fly, most workflows rely on a copy of rendered ‘video proxies’ with baked-in LUTs.
When it is not desired to have matched shots with a first color correction:

- Externally recorded material can be ingested/ transferred to postproduction with a LUT applied on the recorder’s outputs (file-based as well as signal output).

- Material recorded to SxS cards with an ALEXA can be converted with a LUT directly in the editing tool using a software plugin or outside the editing tool using a standalone converter app.

When it is desired to have matched shots and an optional first color correction to get a preview of the intended look, the clips or e.g. dpx or tiff file sequences are usually brought into a color grading tool which applies the LUT upon rendering.
Converting Log C encoded material to Rec 709 video gets rid of all information that is not required for a “what you see is what you get image”. When Rec 709 material is brought back to Log C it therefore does not contain the same amount of information.

Visual Effects
Visual effects often work with linear light encoded material. When Log C material is linearized, all information can be preserved. It is therefore possible to do round-trip conversions from Log C to linear and back to Log C.

ARRI's LUT Generator

Nowadays a broad variety of post tools work with LUTs and are meant to apply color transformations to the signal. ARRI offers LUTs for all commonly used software and hardware solutions. Please visit our LUT Generator at www.arri.com/alexa/tools to download the LUTs you need.

Look Files in the camera

ARRI Look Files are editable XML files that can apply a customized look to all outputs (EVF-1, MON OUT, REC OUT, ProRes and/or DNxHD) that are set to Rec 709.
These files can be saved to an SD card and imported into the camera. One Look File can be activated at a time and applied to the different image paths individually. It is possible, for instance, to record a clean Log C image onto the SxS PRO card while outputting a Rec 709 image with a look applied on the MON OUT output. As soon as a Look File gets applied to any output, the data of the Look File is stored in metadata.

Apply Look File
look embedded and/or burnt-in

SxS PRO Card
look embedded in file header and/or burnt-in

HD
look embedded and/or burnt-in

ARRIRAW
look embedded in file header

REC OUT

Image with Look applied
save as cineon, dpx, jpeg or tiff

2. Use Look

Look File
copy *.xml file to SD card

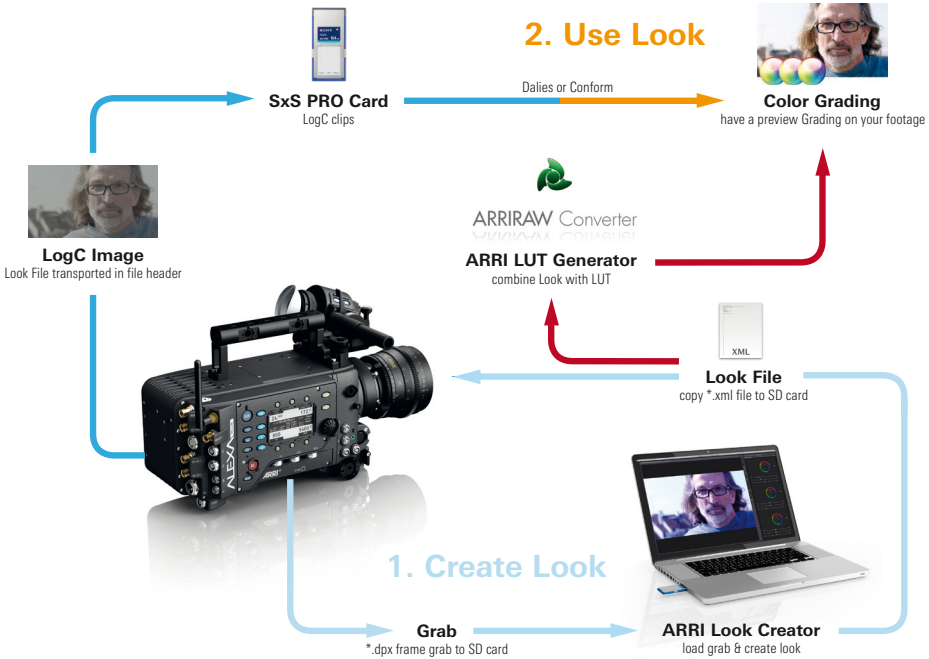
1. Create Look

Grab
*.dpx frame grab to SD card

ARRI Look Creator
load grab & create look

Look Files in a non-destructive workflow

The Look File does not only go back into ALEXA where it is embedded in the metadata/file header, but it is also used in the ARRI LUT Generator at http://www.arri.com/alexa/tools. The ARRI LUT Generator incorporates the Look File into a LUT. The LUT on the other hand is used e.g. in a color grading application where it serves as a reference point for the grading artist. In this way the director of photography's vision is being transported directly to post, where the actual 'development' of the images takes place.


2. Use Look
SxS PRO Card
LogC clips
Dailies or Conform
Color Grading
have a preview Grading on your footage
LogC Image
Look File transported in file header
ARRIRAW Converter
ARRI LUT Generator
combine Look with LUT
XML
Look File
copy *.xml file to SD card
1. Create Look
Grab
*.dpx frame grab to SD card
ARRI Look Creator
load grab & create look

Legal and Extended Range

An image encoded in 10 bit legal range has a code value range from 64 to 940 (876 code values), and a 10 bit extended range signal has a code value range from 4 to 1019 (1015 code values). Contrary to popular belief, extended range encoding does not provide a higher dynamic range, not does legal range encoding limit the dynamic range that can be captured. It is only the quantization (the number of lightness steps between the darkest and brightest image parts) that is increased by a marginal amount (about 0.2 bits).

The concept of legal/extended range can be applied to data in 8, 10, or 12 bit. All ProRes/DNxHD materials generated by the ALEXA camera are in legal range, meaning that the minimum values are encoded by the number 64 (in 10 bit) or 256 (in 12 bit). The maximum value is 940, or 3760, respectively. All known systems, however, will automatically rescale the data to the more customary value range in computer graphics, which goes from zero to the maximum value allowed by the number of bits used in the system (e.g. 255, 1023, or 4095). FCP will display values outside the legal range ("superblack" and "superwhite") but as soon as you apply a RGB filter layer, those values are clipped. This handling is the reason why the ALEXA camera does not allow recording extended range in ProRes.

p and psf

The ALEXA camera offers two different ways to output an HD-SDI signal. Either as progressive frame (p) or as progressive segmented frame (psf). A progressive segmented frame is a progressive frame split into two segments (odd and even lines), which is transported 'like' an interlaced frame. In contrast to the interlaced frame it does not have two different states of movement in it. Psf has been introduced for devices only capable of processing interlaced streams to be able to transport progressive images.

This setting has no influence on the internal recording of ProRes or DNxHD, nor on the ARRIRAW output.

Metadata Overview

Metadata is a set of data that describes and gives information about other data. ALEXA always records as much metadata as is available. This additional information makes documentation easier as the metadata is stored within the image files so it cannot get lost.

A range of automatic and human-readable data is being delivered by the ALEXA camera, that makes work in post much easier: exposure index, gamma and white balance information, for example, is essential for creating dailies or color grading. Reel number, project fps, date and time become important when combining images and sound from different sources. Frame by frame lens metadata, as recorded by ALEXA Plus, ALEXA M or ALEXA Studio, when used with an LDS lens or a non-LDS lens in combination with the Lens Data Mount or Lens Data Archive, is very useful for VFX work.

The Metadata fields listed here are a selection from a larger set of metadata that is stored along with the movie clips on the SxS PRO card. Metadata in the ALEXA appears in several different ways: Final Cut Pro 7 XML file, Avid Log Exchange (ALE) file, QuickTime metadata atom, MXF metadata XML and the ARRI Digital MetaData (ADMD) atom.

Theses atoms or text based files can be parsed by e.g. editing software and offer the accompanying information mentioned above to the application and its user.

Camera Parameter	Description	*.XML (SxS)	*.ALE (SxS)	META (SxS)	ADMD (SxS)	SDI	Grab[2]
Camera Serial Number	Serial number of camera as on housing	take	take	take		take	take
Camera ID	Camera serial number short form	take	take	take		take	take
Camera SUP Version	Software version active on camera	take	take	take		take	take
Sensor Fps	Frame rate of sensor	take	take	take		frame	frame
Shutter Angle	Shutter angle of sensor in degrees	take	take	take		frame	frame
Exposure Index	Exposure index value set on camera in ASA	take	take	take		frame[3]	frame[3]
White Balance	White balance of camera as a color temperature in Kelvin	take	take	take		frame[3]	frame[3]
White Balance CC	Green/magenta correction value of white balance	take	take	take		frame[3]	frame[3]
Gamma	Gamma set on image path	take	take	take		frame[3]	frame[3]
Camera Model	Type of camera (ALEXA, ALEXA Plus/Plus 4:3, ALEXA Studio, ALEXA M)	take	take	take		take	take
UUID	Universal unique identifier created by camera for each new clip	take	take	take		take	take
Lens Type[1]	Lens model connected to camera	take	take	take		take	take
Zoom Distance[1]	Current focal position on zoom lenses	take	take		frame	frame	frame
Focus Distance[1]	Current focus distance of lens				frame	frame	frame
Iris Value[1]	Current iris value of lens				frame	frame	frame
Master/Slave Info	Identifies master/slave camera	take	take	take		take	take
Channel Info	Marks left or right channel of 3D setup	take	take	take		take	take
Reel Name	Name of current SxS reel	take	take	take		frame[3]	frame[3]
Take Name	Counter of take on SxS card	take	take			frame[3]	frame[3]
Sound Reel Name	Name of sound reel as entered by user	take	take	take		frame[3]	frame[3]
SxS Serial Number	Number of SxS card used for recording	take	take	take			
User Date	Date as set by user on camera menu	take	take	take		take	frame[3]
User Time	Time as set by user on camera menu	take	take	take		take	frame[3]

[1] ALEXA Plus/Plus 4:3, ALEXA M or ALEXA Studio
[2] Only for .ari frame grabs.
[3] This metadata is updated every frame but might be delayed in the processing chain by up to 10 frames.
Please note: this is only an excerpt of the ALEXA Metadata, please refer to our download website for the most recent whitepaper.

Licenses

Licensed features expand the capabilities of an ALEXA camera. A license file is serial number sensitive and can only be used on the camera for which it has been purchased. Currently there are three licenses available: Anamorphic De-squeeze, High Speed and DNxHD Recording.

- Anamorphic De-squeeze shows a properly de-squeezed image (with or without surround view) on EVF-1 and/or MON OUT when working with 1.3x or 2x anamorphic lenses.

- The High Speed license allows recording 60 to 120 fps in 16:9 HD with ProRes codecs up to ProRes 422 HQ or with DNxHD codec up to DNxHD 220x onto SxS PRO 64 GB cards. This mode uses the same Super 35 sensor area as Regular Speed mode (same depth of field, same angle of view). ARRIRAW, 2K SxS resolution, ProRes 4444 and 4:3 sensor mode are not supported in High Speed mode; REC OUT will be rerouted to clone MON OUT.

- The DNxHD license allows in-camera recording onto SxS PRO cards of 16:9 HD Avid DNxHD 145 (8 bit 4:2:2), DNxHD 220x (10 bit 4:2:2) and DNxHD 444[1] (10bit 4:4:4) codecs, both within an MXF wrapper and embedded audio, timecode and metadata. ALEXA MXF/DNxHD files use operational pattern OP1a, frame wrapped, per SMPTE 2019-4-2008 and a MXF (Media eXchange Format) container

(compared to the Quicktime “mov” container). MXF/DNxHD files can be linked to Avid Media Composer 5.5 or greater using the ALEXA AMA plug-in (available from the ARRI website for Windows or Mac OS X). Of course DNxHD recording is available in Regular and in High Speed mode (see High Speed license).

[1]SUP 7.1 feature

ALEXA Preshoot Checklist

General considerations

This chapter offers checklists for typical use-cases of an ALEXA camera. During prep or pre-production, the following topics should be clear:

The basic camera parameters (e.g. timecode basis respectively project speed, choice of gamma and recording format) should always be discussed with postproduction. The choice of camera settings can be affected for different reasons. Sometimes the reasons are creative, sometimes the production pace may have an influence.

To avoid surprises, it is critical to give the planned setup a try and run a short test through the entire workflow before starting the shoot; This is the fastest and most reliable way to identify problems in the digital workflow.

We highly recommend that you make at least one verified backup immediately after the recording media is removed from the camera. We also recommend that a first quality control should ideally happen on location. With digitally captured footage being viewable immediately after recording, potential problems can be spotted right away and re-shooting a scene will be less of a problem. Also check the conditions of your completion bond; it is not unusual that LTO backups are a mandatory requirement for the footage to be covered.

Recording on SxS PRO cards

Camera Setup
The following steps are necessary to prep the camera for SxS recording.

- Always start your camera setup with a **factory reset**. Press the **Menu button**, go to **User Setups > Factory reset** and press **both soft buttons** to confirm.
- Use the **PROJECT** shortcut to go straight to the project settings.
  - Set the **project frame rate** (i.e. timecode base and playback frame rate).
  - If shooting with several cameras, assign an individual **camera index** to each camera unit.
  - **Next reel count** typically starts with 001 and automatically increments when the camera starts recording to a new card. This setting usually does not need to be touched.
- Press the **TC button** and enter the timecode **OPTIONS**. Assuming we'll get timecode from the sound guy:
  - Set **Source** to **Ext LTC** and verify that
  - **Mode** is set to **Free Run** and
  - **Generator** is set to **Jam Sync**.
- Press the **HOME button** and go to the **FPS** screen.
  - Enter **SXS CODEC** to select the **Codec** used for recording.
  - Go **BACK** and enter **FPS > SDI FPS** and set **REC OUT** and **MON OUT** to the project frame rate.
  - Go **BACK**, select the **SENSOR FPS** from the list and enter by clicking the menu wheel.
- From the **HOME** screen, go to **SHUTTER** and adjust the exposure time.
- **HOME > WB** to adjust the white balance to match the light source.

Recording on SxS PRO cards cont.

- **HOME > COLOR > GAMMA**, set **SxS** to **LOG C** and everything else to **REC 709**.
- **HOME > EI** and adjust the sensitivity, if required.

Frequently used functions should be assigned to the **USER buttons**

- Press **USER button** and enter the **EDIT** screen.
  - Buttons 1 – 3 can also be used on the operator side, so assign functions like **EVF Gamma**, **MON OUT false color** and **MON OUT peaking**.
  - Buttons 4 and 5 are only available on the assistant side through the user screen, so assign functions like **Format Card1** or **2** or **Toggle SxS**.

SxS Card Rotation

- Take a fresh SxS PRO card, make sure it is not locked and insert it into one of the camera's slots, label facing outwards.
- If the card had not been used before in an ALEXA, the camera will automatically prompt you to format it.
- If the card had been used before, first **verify that the material has been properly transferred**. Then use **MENU > Recording > SxS cards > Quick format SxS Card #** to format/empty the card for recording.
- Don't wait for the cards to fill up completely. As a rule of thumb, it's time to change the reel when the remaining recording time is less than twice the length of the current take.
- When a card is full:
  - Eject the card,
  - Engage the write protection lock,
  - Put the card into its case and

- Visually mark the “exposed negative” with colored tape.

- The data wrangler should perform at least the following steps:
  - Transfer the card’s contents to at least **two backup drives** including **checksum verification**.
  - Disengage the write protection lock.
  - Optionally quick format the card using any type of file system. This greatly reduces risk of accidently formatting over a card that has not been backed up.

Put the card back into its case without color tape and hand over to the assistant.

Please note: The new Sony SxS Pro+ cards (announced for NAB 2013) are not supported by SUP 7.0 or earlier.

Recording High Speed

Camera Setup
The following steps are necessary to prep the camera for High Speed SxS recording. Makes sure you are using Sony SxS PRO 64GB cards.

- Always start your camera setup with a **factory reset**. Press the **Menu button**, go to **User Setups > Factory reset** and press **both soft buttons** to confirm.
- Use the **PROJECT** shortcut to go straight to the project settings.
  - Set the **project frame rate** (i.e. timecode base and playback frame rate).
  - If shooting with several cameras, assign an individual **camera index** to each camera unit.
  - **Next reel count** typically starts with 001 and automatically increments when the camera starts recording to a new card. This setting usually does not need to be touched.
- Press the **TC button** and enter the timecode **OPTIONS**. Sync with audio usually is not required, so the best option is to use record run timecode:
  - Set **Source** to **Int TC** and
  - set **Mode** to **Rec Run**.
- Press the **HOME button** and go to the **FPS** screen.
  - Press **HIGHSPEED** and confirm switching to High Speed mode.
  - Enter **SET CODEC**, set **SxS recording** to **ProRes** or **DNxHD** and **HS Codec** to e.g. **ProRes 422 (HQ)** or **DNxHD 175x/185x/220x.**
  - Go **BACK**, enter **SDI FPS** and set **MON OUT** to the project frame rate
  - Go **BACK**, select the **SENSOR FPS** from the list and enter by clicking the menu wheel.
- From the **HOME** screen, go to **SHUTTER** and adjust the exposure time.

- **HOME > WB** to adjust the white balance to match the light source.
- **HOME > COLOR > GAMMA**, set **SxS** to **LOG C** and everything else to **REC 709**.
- **HOME > EI** and adjust the sensitivity, if required.

Frequently used functions should be assigned to the **USER buttons**

- Press **USER button** and enter the **EDIT** screen.
  - Buttons 1 – 3 can also be used on the operator side, so assign functions like **EVF Gamma, MON OUT false** color and **MON OUT peaking**.
  - Buttons 4 and 5 are only available on the assistant side through the user screen, so assign functions like **Format Card1** o r **2** or **Toggle SxS**.

SxS Card Rotation

Refer to “Recording on SxS PRO cards“ (p. 45) for information on SxS card rotation.

Recording ARRIRAW uncompressed

Camera Setup
The following steps are necessary to prep the camera for ARRIRAW recording.

- Always start your camera setup with a **factory reset**. Press the **Menu button**, go to **User Setups > Factory reset** and **press both soft buttons** to confirm.
- Use the **PROJECT** shortcut to go straight to the project settings.
  - Set the **project frame rate** (i.e. timecode base and playback frame rate).
  - If shooting with several cameras, assign an individual **cameraindex** to each camera unit.
  - **Next reel count** typically starts with 001 and automatically increments when the camera starts recording to a new card. This setting usually does not need to be touched.
- Press the **TC button** and enter the timecode **OPTIONS**.

  Assuming we'll get timecode from the sound guy:
  - set **Source** to **Ext LTC** and verify that
  - **Mode** is set to **Free Run** and
  - **Generator** is set to **Jam Sync**.
- Press the **Menu button** and go to **Recording > REC OUT**.
  - Set the **frame rate** according to the **project frame rate**.
  - Set the **HD-SDI format** to **ARRIRAW 1.5G SL** for recording standard speeds. If the recorder supports 3G HD-SDI, you can also set the camera to **ARRIRAW 3G SL**.
  - Turn **REC OUT fps sets sensor fps on**.
  - Turn **SDI remote on**.
  - Turn **Variflag off**.
- Press the **BACK button** and go to **SxS Cards**.
  - If editing proxies shall be recorded to SxS cards, go to **SXS CODEC** and select a **Codec**.
    If nothing will be recorded to SxS cards, turn **SxS recording Off**.

- Press the **HOME button**, go to the **FPS > SDI FPS** and set the **MON OUT** frame rate to same as **REC OUT**.
- From the **HOME** screen, go to **SHUTTER** and adjust the exposure time.
- **HOME > WB** to adjust the white balance to match the light source.
- **HOME > COLOR > GAMMA**, set **SxS** (if used), **MON OUT** and **EVF** to **REC 709**.
- **HOME > EI** and adjust the sensitivity, if required.

Frequently used functions should be assigned to the **USER buttons**

- Press **USER button** and enter the **EDIT** screen.
  - Buttons 1 – 3 can also be used on the operator side, so assign functions like **EVF Gamma, MON OUT falsecolor** and **MON OUT peaking**.
  - Buttons 4 and 5 are only available on the assistant side through the user screen, so assign functions like **Return in active** or **Format Card 1**.

Recorder Setup

As the recorder setup greatly varies for each manufacturer, please check the respective manuals for setup instructions. Operating the recording hardware needs to be taken very seriously. Only trained personnel should be responsible for handling recording equipment.

- Input format: ARRIRAW 1620p
- HD-SDI: 1.5G or 3G, as set on camera
- Frame rate: REC OUT frame rate from camera
- Record trigger: SDI
- TC source: HD VANC

ALEXA in a 3D Sync configuration

Camera Setup
The first steps need to be performed on both cameras to prep them for a 3D shoot.

- Connect the ALEXA EXT to EXT cable to both cameras.
- Connect the ALEXA Ethernet to Ethernet cable to both cameras.
- Start the camera setup with a **factory reset**. Press the **Menu button**, go to **User Setups > Factory reset** and press **both soft buttons** to confirm.
- Don't bother to set up the **PROJECT** settings.
- Press the **MENU button** and go to **SYSTEM > External Sync**.
  - Set the **Eye index** for each camera depending on their position.
  - Set **Sensor sync** to **EXT master** on one camera and **EXT slave** on the other.
  - Set **Settings sync** to **ETH master** on one camera and **EXR slave** on the other.

Note:
The camera that can be seen better in the 3D rig should be set to **EXT/ETH slave** as only the slave camera indicates a missing sync between master and slave before recording.

Now follow the guides for SxS, High Speed SxS or ARRIRAW recording using the master or the slave camera. The settings are automatically synced on both cameras no matter if master or slave is used for setup.

From time to time (reboot, switching from playback to recording) it is advisable to re-trigger the REC OUTs. Navigate to **SYSTEM > External Sync** and choose **Send HD sync trigger**.

ALEXA M fiber maintenance

The cleanliness of the optical fiber connectors is mandatory for seamless functionality. Make sure not to touch the white fiber ends and never leave the connectors open - cover them with their rubber covers when not in use. Plug the fiber covers together while using the fiber cable to prevent dirt from accumulating inside the cover. Regularly check the cleanliness of the fiber end; if dirty, clean the fiber end with an appropriate tool such as the SMPTE cleaning pen (K2.72082.0).

Specifications and Reference

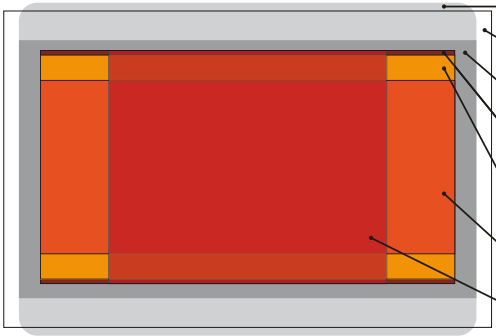
Technical Specs

Camera Types:

ALEXA	35 format film-style digital camera with integrated shoulder arch and receptacles for 15 mm lightweight rods.
ALEXA Plus	Offers in addition built-in support for the ARRI Wireless Remote System, cmotion cvolution lens control system and ARRI Lens Data System (including Lens Data Mount and Lens Data Archive for lenses without built-in LDS).
ALEXA Plus 4:3	This version of ALEXA Plus offers a 4:3 capture mode in addition to the "Plus" feature set. It is bundled with Anamorphic Desqueeze, Highspeed and DNxHD license.
ALEXA Studio	In addition features a rotating mirror shutter, an optical viewfinder that can be exchanged with the standard electronic viewfinder and 4:3 capture mode.
ALEXA M	Based on the ALEXA, but with separate camera head and body. Also offers 4:3 capture mode.

Sensor 35 format ALEV III CMOS sensor with Dual Gain Architecture (DGA) and Bayer pattern color filter array.

Sensor Mode: 16:9, Recording Resolution: HD
ALEXA, ALEXA Plus, ALEXA Plus 4:3, ALEXA M and ALEXA Studio



Surround View Optical Viewfinder (Studio only, 1.38:1)
26.14 x 19.0 mm / 1.029 x 0.748", ø: 32.32 mm / 1.272"

Sensor Size 3392 x 2200 Photosites (1.54:1)
27.98 x 18.15 mm / 1.102 x 0.715", ø: 33.352 mm / 1.3123"

Surround View EVF-1/MON OUT 3168 x 1782 Photosites (1.78:1)
26.14 x 14.70 mm / 1.029 x 0.579", ø: 29.99 mm / 1.181"

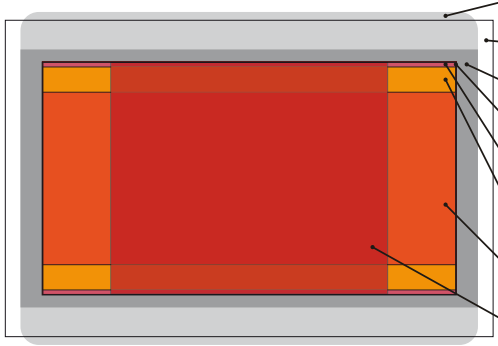
ARRIRAW, ProRes HD, DNxHD, Frameline ARRI 1.78
2880 x 1620 Photosites (1.78:1)
23.76 x 13.37 mm / 0.935 x 0.526", ø: 27.26 mm / 1.073"

Frameline ARRI 1.85 2880 x 1558 Photosites (1.85:1)
23.76 x 12.85 mm / 0.935 x 0.506", ø: 27.01 mm / 1.063"

Frameline ARRI 2.39 Flat 2880 x 1206 Photosites (2.39:1)
23.76 x 9.95 mm / 0.935 x 0.392", ø: 25.76 mm / 1.014"

Frameline ARRI 2.39 Scope 2x 1936 x 1620 Photosites (1.195:1)
15.97 x 13.37 mm / 0.629 x 0.526", ø: 20.83 mm / 0.820"

Sensor Mode: 16:9, Recording Resolution: 2K
ALEXA, ALEXA Plus, ALEXA Plus 4:3, ALEXA M and ALEXA Studio



Surround View Optical Viewfinder (Studio only, 1.38:1)
26.14 x 19.0 mm / 1.029 x 0.748", ø: 32.32 mm / 1.272"

Sensor Size 3392 x 2200 Photosites (1.54:1)
27.98 x 18.15 mm / 1.102 x 0.715", ø: 33.352 mm / 1.3123"

Surround View EVF-1/MON OUT 3168 x 1782 Photosites (1.78:1)
26.14 x 14.70 mm / 1.029 x 0.579", ø: 29.99 mm / 1.181"

ARRIRAW 2880 x 1620 Photosites (1.78:1)
23.76 x 13.37 mm / 0.935 x 0.526", ø: 27.26 mm / 1.073"

ProRes 2K, Frameline ARRI 1.78 2868 x 1612 Photosites (1.78:1)
23.66 x 13.30 mm / 0.931 x 0.524", ø: 27.14 mm / 1.069"

Frameline ARRI 1.85 2868 x 1550 Photosites (1.85:1)
23.66 x 12.79 mm / 0.931 x 0.504", ø: 26.90 mm / 1.059"

Frameline ARRI 2.39 Flat 2868 x 1200 Photosites (2.39:1)
23.66 x 9.90 mm / 0.931 x 0.390", ø: 25.65 mm / 1.009"

Frameline ARRI 2.39 Scope 2x 1926 x 1612 Photosites (1.195:1)
15.89 x 13.30 mm / 0.626 x 0.524", ø: 20.72 mm / 0.816"

Photosites

16:9 sensor mode:
2880 x 1620 for ARRIRAW and HD recording formats, 2868 x 1612 for ProRes 2K recording.

Sensor Mode: 4:3, Recording Resolution: 2K
ALEXA Plus 4:3, ALEXA M and ALEXA Studio

Surround View Optical Viewfinder (Studio only, 1.38:1)
26.14 x 19.0 mm / 1.029 x 0.748", ø: 32.32 mm / 1.272"

Sensor Size 3392 x 2200 Photosites (1.54:1)
27.98 x 18.15 mm / 1.102 x 0.715", ø: 33.352 mm / 1.3123"

Surround View EVF-1/MON OUT 3168 x 2160 Photosites (1.47:1)
26.14 x 17.82 mm / 1.029 x 0.702", ø: 31.64 mm / 1.246"

ARRIRAW 2880 x 2160 Photosites (1.33:1)
23.76 x 17.82 mm / 0.935 x 0.702", ø: 29.70 mm / 1.169"

ProRes 2K, Frameline ARRI 1.33 2868 x 2150 Photosites (1.33:1)
23.66 x 17.74 mm / 0.931 x 0.698", ø: 29.57 mm / 1.164"

Frameline ARRI 1.78 2868 x 1612 Photosites (1.78:1)
23.66 x 13.30 mm / 0.931 x 0.524", ø: 27.14 mm / 1.069"

Frameline ARRI 1.85 2868 x 1550 Photosites (1.85:1)
23.66 x 12.79 mm / 0.931 x 0.504", ø: 26.90 mm / 1.059"

Frameline ARRI 2.39 Flat 2868 x 1200 Photosites (2.39:1)
23.66 x 9.90 mm / 0.931 x 0.390", ø: 25.65 mm / 1.009"

Frameline ARRI 2.39 Scope 2x 2570 x 2150 Photosites (1.195:1)

4:3 sensor mode:

2880 x 2160 for ARRIRAW recording, 2868 x 2150 for ProRes 2K recording.

Operating Modes	**Sensor mode** 16:9 or 4:3. Switching takes approx. 60 seconds. 4:3 output only available for ARRIRAW and ProRes 2K recording; Not available for DNxHD recording. **Regular** or **High Speed mode.** Switching takes approximately 40 seconds. 4:3 High Speed mode is only available for 16:9 sensor mode. **Mirror shutter (ALEXA Studio only)** on or off. Switching takes approximately 3 seconds through camera display.
Filter (ALEXA Studio only)	Sealed behind-the-lens motorized filter mechanism provides optical flat or ND 1.3 (4 1/3 stops)

Frame Rates

Operating Mode[1]	Recording/Output Format	Fps Range[2]	Configuration
16:9 HD	ProRes 422 (Proxy), 422 (LT), 422 and 422 (HQ)	0.75 – 60	32 GB/64 GB SxS PRO cards
	ProRes 422 (Proxy), 422 (LT), 422 and 422 (HQ)	0.75 – 120	High Speed license and 64 GB SxS PRO cards
	ProRes 4444	0.75 – 40	32 GB SxS PRO cards
	ProRes 4444	0.75 – 60	64 GB SxS PRO cards, SUP 5.0 or later
	DNxHD 145 and 220x	0.75 – 60	DNxHD license, 32 GB/64GB SxS PRO cards
	DNxHD 145 and 220x	0.75 – 120	DNxHD, High Speed license and 64 GB SxS PRO cards
	DNxHD 444[3]	0.75 – 60	DNxHD license and 64 GB SxS PRO cards, SUP 7.1 or later
	HD-SDI	0.75 – 60	
16:9 2K	ProRes 422 (Proxy), 422 (LT), 422 and 422 (HQ)	0.75 – 60	32 GB/64 GB SxS PRO cards, SUP 7.0 or later
	ProRes 4444	0.75 – 40	32 GB SxS PRO cards, SUP 7.0 or later
	ProRes 4444	0.75 – 60	64 GB SxS PRO cards, SUP 7.0 or later
	HD-SDI		MON OUT clone
4:3 2K	ProRes 422 (Proxy), 422 (LT) and 422	0.75 – 48	32 GB SxS PRO cards, SUP 7.0 or later
	ProRes 422 (HQ)	0.75 – 40	32 GB SxS PRO cards, SUP 7.0 or later
	ProRes 4444	0.75 – 30	32 GB SxS PRO cards, SUP 7.0 or later
	ProRes 422 (Proxy), 422 (LT), 422, 422 (HQ) and 4444	0.75 – 48	64 GB SxS PRO cards, SUP 7.0 or later
16:9 ARRIRAW	Uncompressed output via T-Link	0.75 – 60	3G DL capable recorder for REC OUT fps = 48, 50, 59,94 or 60 fps
4:3 ARRIRAW	Uncompressed output via T-Link	0.75 – 48	3G DL capable recorder for REC OUT fps = 48, 50, 59,94 or 60 fps

[1] ALEXA Studio: mirror shutter only available from 0.75 to 60 fps regardless of the operating mode
[2] All speeds adjustable with 1/1000 fps precision
[3] SUP 7.1 feature

Shutter

Rotating mirror shutter (ALEXA Studio only) (11.2° - 180.0°) or electronic rolling shutter (0.75 - 60 fps: 5.0° - 358.0°; 60 - 120 fps: 356°). Shutter angle setting precision: 1/10 degree. Certain fps limits apply for maximum mirror shutter angle.

Exposure Latitude

14 stops for all sensitivity settings from EI 160 to EI 3200, as measured with the ARRI Dynamic Range Test Chart (DRTC).

Exposure Index

EI $160^{+5.0}_{-9.0}$ EI $200^{+5.3}_{-8.7}$ EI $400^{+6.3}_{-7.7}$ EI $800^{+7.4}_{-6.6}$ EI $1600^{+8.4}_{-5.6}$ EI $3200^{+9.4}_{-4.6}$

Values behind the exposure index are the number of available stops above and below 18% grey. These values apply to Log C output. Rec 709 output provides 0.5 stops less on the low end at EI 160, 0.4 stops less on the low end at EI 200 and 0.2 stops less on the low end at EI 400.

White Balance

Separate red/blue and green/magenta balance available through Auto White Balance or manual setting. Red/blue: 2000 to 11000 Kelvin, adjustable in 100 K steps, with presets of 3200 (tungsten), 4300 (fluorescent), 5600 (daylight), 7000 (daylight cool). Green/magenta: -8 to +8 color correction (CC), 1 CC = 035 Kodak CC values or 1/8 Rosco values.

Sound Level	Under 20 db(A) @ 24 fps (mirror shutter running on the Studio) and ≤ +30° Celsius (≤ +86° Fahrenheit) with lens attached and fan mode set to 'Regular', measured 1 m/3 feet in front of the lens. Silent operation at higher temperatures possible with fan mode set to 'Rec low'.
Power In	BAT connector, optional V-Lock or Gold mount battery adapter back and top. Camera accepts 10.5 to 34 V DC on all inputs.
Power draw	
ALEXA/ALEXA Plus/4:3:	85 W for camera and EVF-1 in typical use recording to SxS PRO cards, without accessories.
ALEXA Studio:	90 W for camera with OVF-1 in typical use recording 24 fps to SxS PRO cards, mirror shutter on, without accessories. When running over 30 fps with mirror shutter on, supply voltage of 18 V or more is recommended.
ALEXA M:	85 W for body in typical use recording to SxS PRO cards, without accessories. 40 W for camera head in typical use without accessories. A 24 V power input to the body is required to power the camera head from the body through a standard SMPTE hybrid cable up to 50 meters, without accessories. The camera head has one 10.5 to 34 V DC power input that can be used to power the head independently form the camera body.

Power Out	**12 V connector:** limited to 12 V, up to 2.2 A. **RS, EXT** and **ETHERNET**: input below 24 V is regulated up to 24 V, above 24 V: input = output voltage. Both RS and EXT connectors combined: up to 2.2 A. **ETHERNET:** up to 1.2 A. Maximum power draw is also limited by the power source. The camera head on the ALEXA M offers two RS connectors and one ETHERNET connector, with the same specifics as on the camera body.
Weight	ALEXA camera body + SxS Module: 6.3 Kg/13.8 lb ALEXA camera body + SxS Module + EVF-1 + Viewfinder Mounting Bracket VMB-1 + viewfinder cable + Center Camera Handle CCH-1: 7.7 Kg/16.9 lb ALEXA Plus/Plus 4:3 camera body + SxS Module: 7.0 Kg/15.4 lb ALEXA Plus/Plus 4:3 camera body + SxS Module + EVF-1 + Viewfinder Mounting Bracket VMB-2 + viewfinder cable + Center Camera Handle CCH-1: 8.4 Kg/18.5 lb ALEXA Studio camera body + SxS Module: 8.0 Kg/17.6 lb ALEXA Studio camera body + SxS Module + OVF-1 + Center Camera Handle CCH-1: 10.2 Kg/22.5 lb ALEXA M Head: 2.9 Kg / 6.39 lb ALEXA M Backend: 5.5 Kg / 12 lb

Dimensions

ALEXA:	Length: 332 mm/12.95", width: 153 mm/6.02", height: 158 mm/6.22"
ALEXA Plus/Plus 4:3:	Length: 332 mm/12.95", width: 175 mm/6.89", height: 158 mm/6.22"
ALEXA Studio:	With OVF-1: Length: 402 mm/15.83", width: 268 mm/10.55", height: 241 mm/9.49"
ALEXA M Head:	length: 212 mm/8.35", width: 129 mm/5.08", height: 149 mm/5.87"
ALEXA M Backend:	length: 323 mm/12.72", width: 153 mm/6.02", height: 158 mm/6.22"

Detailed drawings can be found in the ALEXA Dimensions PDF document on our website at: http://www.arri.com/alexa/downloads

Environmental

Operating temperature range: -20° C to +45° C (-4° F to +113° F) @ 95% humidity max, non condensing.
ALEXA Studio: -10° C to +45° C (+14° F to +113° F) @ 95% humidity max, non condensing.
Cameras are splash and dust proof through sealed electronics. System cooling through radiator/single fan.

Lens Mount

ARRI Exchangeable Lens Mount (ELM); ships with Lens Adapter PL Mount with LDS contacts, 54 mm stainless steel PL mount, Super 35 centered. Standard ALEXA has no LDS contacts.

Flange Focal Depth	52.00 mm nominal
Viewfinder	Low latency (≤1 frame delay) electronic color viewfinder ARRI EVF-1 with 1280 x 784 F-LCOS micro display (image: 1280 x 720, status bars: 1280 x 32 above and 1280 x 32 below image) and ARRI LED illumination, both temperature controlled. Image can be flipped for use of viewfinder on camera left or right. Viewfinder Mounting Bracket allows movement of viewfinder forward/backwards, left/right, up/down, 360-degree rotation and placement on camera left or right. EVF-1 controls: viewfinder and basic camera settings, ZOOM button (2.25x pixel to pixel magnification), EXP button (false color exposure check) and jog wheel. ALEXA Studio: Optical viewfinder OVF-1 shows a bright, high contrast image for through-the-lens viewing with low distortion, accurate color fidelity and no delay. Can be used camera left or right and the viewfinder arm telescopes closer/farther from the camera body. Automatically keeps an upright image in all positions with an optional override for manual image rotation. Includes a flip in ND 0.6 contrast filter and 2x de-squeeze module for 2x anamorphic lenses lenses (can also be retrofitted with a 1.3x de-squeeze module). Includes Basic Insert Module BIM-1 for RGB frameglow. Accepts 8x and 10x 435 eyepieces, 435 eyepiece extensions and heated eyecups. With the optional ARRICAM Eyepiece Adapter AEA-1, the OVF-1 can accept the 8x ARRICAM Studio eyepiece, ARRICAM Studio Viewfinder Extension Medium and ARRICAM Studio View-

finder Zoom Extension. Not compatible with Lite Universal Eyepiece. Can be replaced with the ALEXA Electronic Viewfinder EVF-1 by using the Electronic Viewfinder Adapter EVA-1.

Assistive Displays

For EVF-1 and MON OUT: frame lines, surround view, camera status, false color exposure check, peaking focus check, electronic level, compare stored image with live image, RETURN IN video and anamorphic de-squeeze. MON OUT only: reel & clip number.

For OVF-1: Warning LEDs for REC (recording), BAT (battery low), FULL (SxS PRO card full). ALEXA Studio ground glass holder and frameglow frames are compatible to ARRICAM. Exact alignment of framelines and captured frame, however, requires the use of ALEXA Studio ground glasses and glow masks. For custom aspect ratios not in the price list, please use the online ground glass composer at http://www.arri.com/camera/ground_glass_composer.html.

Control

Camera right: main user interface with a 3" transflective 400 x 240 pixel LCD color screen, illuminated buttons, button lock and jog wheel.

Camera left: operator interface with illuminated buttons, button lock and card swap button.

Optional accessory RCU-4 for remote control via camera ETHERNET connector.

In-camera Recording

Records Apple QuickTime files with ProRes encoding or MXF files with DNxHD encoding onto either one or two (Dual Recording) SxS PRO cards. All codecs maintain legal range levels with embedded audio, timecode and metadata. MXF/DNxHD may require a license key.

Recording Outputs

2x 1.5 G or 3G REC OUT BNC connectors for ARRIRAW (4:3 or 16:9) or HD-SDI video (16:9). Both with embedded audio, timecode, metadata and recording flag.

ARRIRAW 2880 x 1620 (16:9) uncompressed 12 bit log without white balance or exposure index processing applied. Requires an ARRIRAW T-Link certified recorder.

ARRIRAW 2880 x 2160 (4:3; ALEXA Studio, Plus 4:3 and M only) uncompressed 12 bit log without white balance or exposure index processing applied. Requires an ARRIRAW T-Link certified recorder.

HD-SDI video: uncompressed 1920 x 1080 (16:9) 4:4:4 RGB or 4:2:2 YCbCr; both legal or extended range. Recording frame rates other than HD standard (23.976, 24, 25, 29.97, 30, 50, 59.94, 60 fps) requires a recorder with Variflag support.

Monitor Output	2x MON OUT BNC connector on ALEXA Plus/Plus 4:3 and Studio for uncompressed 1.5G HD-SDI video: 1920 x 1080 (16:9), 4:2:2 YCbCr; all legal range. ALEXA and ALEXA M offer 1x MON OUT.
Image Processing	16 bit linear internal image processing. Target color spaces for ProRes, DNxHD 220x, REC OUT and MON OUT: Log C and Rec 709. Target color space for DNxHD 145: Rec 709. For Rec 709, a customized look can be applied during record and playback with ARRI Look Files. Optional horizontal image mirroring.
Synchronization	Master/Slave mode for precision sensor sync, synchronized settings, processing, HD-SDI outputs and QuickTime/ProRes or MXF/DNxHD recording for 3D applications. Automated sync of lens settings for 3D applications in Master/Slave mode.
Playback	QuickTime/ProRes or MXF/DNxHD playback from SxS PRO cards to EVF-1, MON OUT and REC OUT. Playback audio embedded in the MON OUT and REC OUT signals and on the headphones jack.
Audio	1x XLR 5 pin AUDIO IN connector for 2 channel, line level balanced audio input, 24 bit/48 kHz A/D conversion, works at 23.976, 24, 25, 29.97 and 30 fps. Audio is recorded uncompressed into the QuickTime/ProRes or MXF/DNxHD files and embedded uncompressed in all HD-SDI outputs, including ARRIRAW T-Link. Max of 2.5 dBm output from AUDIO OUT headphones connector.

Connectors

Connector type	Name	ALEXA	ALEXA Plus/4:3/ Studio	ALEXA M Backend	ALEXA M Head
Slots for SxS PRO cards	SxS	2	2	2	–
BNC recording out HD-SDI, 1.5G/3G	REC-OUT 1/2	2	2	2	–
BNC monitoring out HD-SDI, 1.5G	MON OUT	1	2	1	–
XLR 5 pin audio in	AUDIO IN	1	1	1	–
BNC return signal HD-SDI, 1.5G	RET/SYNC IN	1	1	1	–
LEMO 16 pin external accessories	EXT	1	1	1	–
Fischer 2 pin 24 V power in	BAT	1	1	1	1
Fischer 3 pin 24 V remote start and accessory power out	RS	2	3	2	2
LEMO 2 pin 12 V accessory power out	12 V	1	1	1	–
LEMO 5 pin timecode in/out	TC	1	1	1	–
TRS 3.5 mm headphone mini stereo jack out	AUDIO OUT	1	1	1	–
LEMO custom 16 pin electronic viewfinder	EVF	1	1	–	1
LEMO 10 pin Ethernet with 24 V power	ETHERNET	1	1	1	1
Fischer 5 pin Lens Control System	LCS	–	2	–	–
Fischer 5 pin Lens Data Display	LDD	–	1	–	–
Fischer 12 pin for CLM-2, CLM-3 or later	IRIS	–	1	–	–
Fischer 12 pin for CLM-2, CLM-3 or later	ZOOM	–	1	–	–
Fischer 12 pin for CLM-2, CLM-3 or later	FOCUS	–	1	–	–
LEMO SMPTE 304M hybrid fiber connector	Optical Link	–	–	1	1

SD Card

For importing ARRI Look Files, camera set up files, frame line files, feature license keys and custom lens tables for the Lens Data Archive (LDA); also used for installing software update packets (SUPs). Stores captured stills from the REC OUT image path in ARRIRAW (.ari, 12 bit), TIFF (.tif, 16 bit), DPX (.dpx, 10 bit) and JPEG (.jpg, 8 bit) format as well as logging files.

Upgrades

The Storage Interface Module (currently available for SxS PRO cards) can be exchanged for future storage modules. The Electronics Interface Module (available as either regular ALEXA or ALEXA Plus versions) can be exchanged for future control electronics. Exchangeable Lens Mount (ELM) allows other lenses beyond PL mount lenses to be used. Simple camera software updates via License keys. Currently available for purchase: Anamorphic De-squeeze, High Speed and DNxHD. ALEXA Studio and ALEXA Plus 4:3 come with all license keys pre-installed.

Note: All technical data based on Software Update Packet (SUP) 7.0.
All data is subject to change without notice.

Menu Settings & Button Functions

MENU

RECORDING menu

SxS Cards >>
- SxS Recording (Off/ProRes/DNxHD*DNxHD)
- Codec (ProRes 422 Proxy/422 LT/422/422 HQ/4444)
  (DNxHD 115/120/145 or DNxHD 175x/185x/220x)
- HS Codec*HS (ProRes 422 Proxy/422 LT/422/422 HQ)
  (DNxHD 115/120/145 or DNxHD 175x/185x/220x)
- SxS resolution (HD (1920x1080/2K (2048x1152/1536*4:3))
- Dual Recording (On/Off)
- Quick format SxS CARD 1/2
- Erase SxS CARD 1/2

REC OUT >>
- Framerate (23.976/24/25/29.97/30/48/50/59.94/60fps)
- HD-SDI format (422 1.5G SL/422 1.5G DL/422 3G SL
  444 1.5 DL/444 3G SL/444 3G DL
  RAW 1.5G DL/RAW 3G SL/RAW 3G DL
  or MON OUT clone)
- Scan format (psf/p)
- Output range (Legal/Extended/Raw)
- REC OUT fps sets sensor fps (On/Off)

MONITORING menu

Electronic viewfinder >>
- Brightness (0-5)
- Rotate image (On/Off)
- Smooth mode (On/Off)
- Surround view (On/Off)
- Frame lines + status info >>
  - Frame lines (On/Off)
  - Surround mask (Black line/Color line/Mask 25%/50%/75%)
  - Center mark (Off/Dot/Cross)
  - Status info (On/Off)
  - Electronic horizon (On/Off)
  - LDS info (On/Off)

Peaking (Off/On) >>
Peaking (On/Off)
Peaking level (Low/Medium/High)
Anamorphic desqueeze*ANAMORPH (Off/1.3x/2.0x/2.0xmag)
Zoom position (Centered/Eye level)
MON OUT >>
Framerate (23.976/24/25/29.97/30fps)
Scanformat (psf/p)
Surround view (On/Off)
Frame lines + status info >>
Frame lines (On/Off)
Surround mask (Black line/Color line/Mask 25%/50%/75%)
Center mark (Off/Dot/Cross)
Status info (On/Off)
Electronic horizon (On/Off)
LDS info (On/Off)
Show reel + clip number (On/Off)
Camera index letter (On/Off)
Peaking (Off/On) >>
Peaking (On/Off)
Peaking level (Low/Medium/High)
False Color (On/Off)
Anamorphic desqueeze*ANAMORPH (Off/1.3x/2.0x/2.0xmag)
Frame lines >>
Frame line 1 (choose/add/delete; Off)
Frame line 2 (choose/add/delete; Off)
User rectangles >>
User rectangles (Off/Rect 1/Rect 2/Rect 1+2)
Set rect 1/2 >>
Top, Bottom, Left, Right (0 - 1000), Reset
Color (Red/Green/Blue/Yellow/Black/White)
Intensity (1-4)
RET IN path (EVF, MON OUT, EVF+MON)
Electronic horizonsensitivity (1x, 2x, 4x, 8x, 16x)
False color index >>

ALEXA SUP 7.0 underlined values represent the factory reset

Menu Settings & Button Functions

MENU

PROJECT menu

Sensor Mode*STUDIO/M/PLUS 4:3 (16:9/4:3)
SxS resolution (Menu > Recording > SxS Cards)
Codec (Menu > Recording > SxS Cards)
Project frame rate (23.976/24/25/29.97/30fps)
Camera index (A-Z)
Next reel count (001-999)
Production info >>
- Director
- Cinematographer
- Location
- Production
- Secne
- Take
- User Info 1/2

SYSTEM menu

Sensor >>
- Sensor mode*STUDIO/M/PLUS 4:3 (16:9/4:3)
- Sensor temperature (Standard/High humidity)
- Mirror image horizontal (On/Off)

Power >>
- BAT1 (Plug) warning (10.0-30.0V; 21.0V)
- BAT2 (Onboard) warning (10.0-30.0V; 12.0V)

External sync >>
- Eye index (L/R)
- Sensor sync (Off/EXT master/EXT slave)
- HD out phase (+/-30 clocks; 0 clocks)
- Send HD sync trigger >
- Settings sync (Off/ETH master/ETH slave)

Test signal >>
- Color bar (On/Off)
- Enable test tone (On/Off)
- Test tone level (0 dB(fs)/-9 dB(fs)/-18 dB(fs))

Display + beeper >>
- Display button brightness (0-8)
- Button brightness (Off/Low/Medium/High)
- Run beeper mode (Off/Start/Stop/Start+Stop)

System time + date >>
set date, time, timezone and daylight saving time
Fan >>
Fan mode (Regular/Rec low)
SD card >>
Format + prepare SD card
Prepare SD card
WNA-1 >>
WNA state *(shows WNA-1 status)*
WiFi power (On/Off)
Mode (Ad Hoc/Infrastructure)
SSID (set SSID name)
Security mode (None/WEP 64)
Password (set Password)
IP Address (adjust IP address)
Subnet (adjust subnet mask address)
Frequency band (2.4 GHz/5 GHz)
Channel (1 thru 11)
Firmware >>
Select update file >>
Licensed features >>
install/delete licenses; save hardware info

FRAME GRABS menu

File format (Jpeg/Tiff/Dpx/Ari)
Compare grab to live image >>
load grab
Options Compare Options >>
Compare mode (Toggle/Interleave)
Active on EVF (On/Off)
Active on MON OUT (On/Off)
Grabbed images inherit REC OUT settings!
Ari only possible, when REC OUT = ARRI RAW

USER SETUPS menu

Save current setup
Load setup
Factory reset

LDS *M

see Lens Data for PLUS/STUDIO

ALEXA SUP 7.0 underlined values represent the factory reset

Menu Settings & Button Functions

HOME

FPS

set sensor speed (0.75 fps-60fps /120fps*HS; 24fps)
add/delete value
HIGHSPEED/EXIT HS*HS (boot ALEXA to HS mode; 60-120fps)
SxS CODEC (MENU > RECORDING > SxS CARDS)
SxS INFO (INFO > SxS CARDS)
SDI FPS >>
REC OUT (23.976, 24, 25, 29.97, 30fps)
MON OUT (23.976, 24, 25, 29.97, 30fps)

AUDIO

adjust CH1+/- (level +20/-10; unity)
adjust CH2+/- (level +20/-10; unity)
AUDIO OUT
set AUDIO OUT
Phones Level (+/-)
OPTIONS
AUDIO OUT > OPTIONS >>
Left out (CH1, CH2, CH1+2, None)
Right out (CH1, CH2, CH1+2, None)
Audio OUT level (Manual, Unity max.)
OPTIONS
AUDIO IN > OPTIONS >>
Record (On/Off)
Channel 1/2 level (Manual/Unity)
Channel 1/2 source (L/R in)
Soundroll (=Tape) (edit name)

SHUTTER

set shutter angle (5.0° - 358.0°; 172.8°)
in highspeed mode (5.0°-356.0°)*HS
add/delete value
see calculated exposure time
MIRROR*STUDIO (On/Off)

EI

set exposure index (160ASA - 3200ASA; 800ASA)

ND FILTER*STUDIO (On/Off)

COLOR

SET LOOK

choose/delete/load look from SD

ARRI LCC look loaded by default

set COLORPATH

EVF (LOOK ON/OFF FOR REC709)

MON OUT (LOOK ON/OFF FOR REC709)

SxS, REC OUT (LOOK ON/OFF FOR REC709)

GAMMA

COLOR > GAMMA >>

SxS (REC709, LOGC)

REC OUT (REC709, LOGC, ARRIRAW)

MON OUT (REC709, LOGC)

EVF (REC709, LOGC)

WB

set WHITEBALANCE (2000K - 11000K, Auto WB; 5600K; and CC SHIFT)

add/rename/delete value

ALEXA SUP 7.0 underlined values represent the factory reset

Menu Settings & Button Functions

USER BUTTON ASSIGNMENT

set Button 1, 2, 3

None
MON OUT surround
MON OUT gamma
MON OUT look
MON OUT frame lines
MON OUT status info
MON OUT false color
MON OUT peaking
MON anam. desqu.*ANAMORPH
Frame lines color
EVF surround
EVF gamma
EVF look
EVF frame lines
EVF status info
EVF zoom
EVF false color
EVF peaking
EVF anam. desqu.*ANAMORPH
Grab still frame
Return in active
Toggle SxS
Check last clip
Circle clip
Auto WB
Color bars
Grab GUI

set Button 4, 5

None
MON OUT surround
MON OUT gamma
MON OUT look
MON OUT frame lines
MON OUT status info
MON OUT false color
MON OUT peaking
MON anam. desqu.*ANAMORPH
Return in active
Frame lines color
Toggle SxS
Color bars
Format Card1
Format Card2
False color index
Mirror shutter

PLAY

SxS PLAYBACK screen

start Playback of last clip (press wheel or PLAY 2x on operator's side)
+/- 10%
CLIPLIST
OPTIONS
PLAY Options >>
Clip end action (Pause/Loop)
Show frame lines (On/Off)
Status info on MON OUT (On/Off)
STEPSIZE (1 frame/1 second)
CIRCLE CLIP

GRAB

FRAMEGRAB screen

save Framegrab to SD Card

ALEXA SUP 7.0 underlined values represent the factory reset

Menu Settings & Button Functions

INFO

SYSTEM INFORMATION screen

LIVE INFO
SAVE TO SD
VERSION
SxS CARDS
SYSTEM
FPS INFO

TC

TIMECODE screen

SET TC (SET TO TIME/RESET/MANUAL)
Options
Timecode Options >>
Source (Int TC/Ext LTC)
Mode (Rec run/Free Run)
Generator (Regen/Jam Sync)
User bit source (Internal/LTC in UB)
Userbits (set Userbits)
Project (Menu > Project)

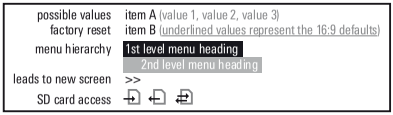
LOCK

BUTTON LOCK

locks HOMESCREEN,MENU, PLAY, TC and INFO:
*also locks the buttons on EVF and WRS*PLUS & STUDIO!*

ALEXA SUP 7.0 underlined values represent the factory reset

LEGEND



***ANAMORPH** = requires Anamorphic Desqueeze License
***DNxHD** = requires DNxHD License
***HS** = requires High Speed License
***PLUS** = ALEXA PLUS only
***PLUS 4:3** = ALEXA PLUS 4:3 only
***STUDIO** = ALEXA STUDIO only
***M** = ALEXA M only

Menu Settings & Button Functions
ALEXA Studio, ALEXA Plus and ALEXA M*

WRS

RADIO

STATUS
Channel: 0
Units: 0
Ready/Off

WRS > RADIO >>
WRS radio power (On/Off)
WRS radio channel (0-7)

CAM LEVEL

STATUS READOUT FROM SENSORS
Tilt: 0.0°
Roll: 0.0°

CAM LEVEL > RESET
use to reset your null balance

LENS DATA

LDS READOUT
Status
LENS DATA
displays FOCAL LENGTH, IRIS, FOCUS and DoF close/far

LDS OPTIONS
Lens distance unit (Metric, Imperial, Default Unit)
Circle of confusion (0.013/0.025/0.035/0.050mm)
Inverse iris scale (On/Off)
Inverse zoom scale (On/Off)
Inverse focus scale (On/Off)
LDA *available when non-LDS lens in use*
manage lens data for non-LDS lenses

IRIS CLM

CLM STATUS
displays TYPE, DIRECTION and TORQUE (1-4; only CLM-3 & 4)

IRIS CLM
set DIRECTION
set TORQUE (only CLM-3 & 4)
CALIBRATE/CALIBRATE ALL motors

ZOOM CLM

CLM STATUS
displays TYPE, DIRECTION and TORQUE (1-4; only CLM-3 & 4)

ZOOM CLM
set DIRECTION
set TORQUE (only CLM-3 & 4)
CALIBRATE/CALIBRATE ALL motors

FOCUS CLM

CLM STATUS
displays TYPE, DIRECTION and TORQUE (1-4; only CLM-3 & 4)

FOCUS CLM
set DIRECTION
set TORQUE (only CLM-3 & 4)
CALIBRATE/CALIBRATE ALL motors

*on ALEXA M via SYSTEM > LDS
ALEXA SUP 7.0 underlined values represent the factory reset

Menu Settings & Button Functions

Electronic Viewfinder EVF-1

CAM

FPS

set sensor speed (0.75 fps-60fps /120fps*HS; 24fps)

SHUTTER

set shutter angle (5.0° - 358°; 172,8°) in High Speed Mode 5.0°-356.0°)*HS

EI

set exposure index (160ASA - 3200ASA; 800ASA)

WB

set white balance (2000K - 11000K, Auto WB; 5600K; and CC SHIFT)

EXP

false color exposure check (toggle mode)

ZOOM

get 2.25x image magnification (toggle mode)

EVF menu

Brightness (0-5)
Rotate Image (On/Off)
Smooth Mode (On/Off)
Surround View (On/Off)
Surround Mask (Black line/Color Line/Mask 25%/50%/75%)
Status Info (On/Off)
Frame Lines (On/Off)
Select Frame Lines 1 (choose from list)
Select Frame Lines 2 (choose from list)
Center Mark (Off/Dot/Cross)
User Rectangles (Off/Rect 1/Rect 2/Rect 1&2)
Edit User Rectangles (only when User Rectangles active)
Frame Lines Color (Red/Green/Blue/Yellow/Black/White)
Frame Lines Intensity (1-4)

Mirror Control on ALEXA Studio

switch to VIEW-mode (Operator sees an image)
press 2x for spinning mirror

switch to GATE-mode (sensor & all video outs "see" an image)
press 2x for spinning mirror

ALEXA SUP 7.0 underlined values represent the factory reset

ARRI Lenses

ARRI/ZEISS Master Prime lenses

Name	Lens Mount [1]	Aperture	Close focus [2]	Magnification ratio [3]	Length [4]	Front diameter [5]	Maximum housing diamenter	Weight
Master Prime 12	PL LDS	T1.3 - T22	0.40 m / 16"	1:16.5	197 mm / 7.8"	156 mm / 6.1"	159 mm / 6.3"	2.9 Kg / 6.4 lb
Master Prime 14	PL LDS	T1.3 - T22	0.35 m / 14"	1:11.7	172 mm / 6.8"	114 mm / 4.5"	128 mm / 5"	2.4 Kg / 5.3 lb
Master Prime 16	PL LDS	T1.3 - T22	0.35 m / 14"	1:11.8	153 mm / 6"	114 mm / 4.5"	128 mm / 5"	2.2 Kg / 4.8 lb
Master Prime 18	PL LDS	T1.3 - T22	0.35 m / 14"	1:11.0	153 mm / 6"	114 mm / 4.5"	128 mm / 5"	2.2 Kg / 4.8 lb
Master Prime 21	PL LDS	T1.3 - T22	0.35 m / 14"	1:9.5	153 mm / 6"	114 mm / 4.5"	128 mm / 5"	2.4 Kg / 5.3 lb
Master Prime 25	PL LDS	T1.3 - T22	0.35 m / 14"	1:8.6	153 mm / 6"	114 mm / 4.5"	128 mm / 5"	2.6 Kg / 5.1 lb
Master Prime 27	PL LDS	T1.3 - T22	0.35 m / 14"	1:7.8	153 mm / 6"	114 mm / 4.5"	128 mm / 5"	2.2 Kg / 4.8 lb
Master Prime 32	PL LDS	T1.3 - T22	0.35 m / 14"	1:7.1	153 mm / 6"	114 mm / 4.5"	128 mm / 5"	2.3 Kg / 5.1 lb
Master Prime 35	PL LDS	T1.3 - T22	0.35 m / 14"	1:6.4	153 mm / 6"	114 mm / 4.5"	128 mm / 5"	2.2 Kg / 4.8 lb
Master Prime 40	PL LDS	T1.3 - T22	0.40 m / 16"	1:7.0	153 mm / 6"	114 mm / 4.5"	128 mm / 5"	2.3 Kg / 5.1 lb
Master Prime 50	PL LDS	T1.3 - T22	0.50 m / 20"	1:7.0	153 mm / 6"	114 mm / 4.5"	128 mm / 5"	2.7 Kg / 5.9 lb
Master Prime 65	PL LDS	T1.3 - T22	0.65 m / 2'3"	1:8.2	153 mm / 6"	114 mm / 4.5"	128 mm / 5"	2.6 Kg / 5.7 lb
Master Prime 75	PL LDS	T1.3 - T22	0.80 m / 2'9"	1:8.9	153 mm / 6"	114 mm / 4.5"	128 mm / 5"	2.8 Kg / 6.2 lb
Master Prime 100	PL LDS	T1.3 - T22	1.00 m / 3'6"	1:8.9	153 mm / 6"	114 mm / 4.5"	128 mm / 5"	2.9 Kg / 6.4 lb
Master Prime 135	PL LDS	T1.3 - T22	0.95m / 3'3''	1:6.6	172 mm / 6.8"	114 mm / 4.5"	128 mm / 5"	2.8 Kg / 6.2 lb
Master Prime 150	PL LDS	T1.3 - T22	1.50 m / 4'11"	1:10.3	210 mm / 8.3"	134 mm / 5.3"	137 mm / 5.4"	4.0 Kg / 8.8 lb

Angle of view H. V. D			Entrance pupil [6]
Normal 35 [8] ID = 27.20 mm [7]	DIN Super 35 [9] ID = 30.00 mm [7]	ANSI Super 35 [10] ID = 31.14 mm [7]	
83.87° -66.44° - 96.13°	88.85° - 72.70° - 101.97°	90.98° - 74.78° - 104.26°	208.3 mm / 8.2"
76.42° - 59.41° - 88.52°	81.24° - 65.39° - 94.07°	83.44° - 67.49° - 96.33°	189.3 mm / 7.4"
70.07° - 53.79° - 81.76°	74.85° - 59.56° - 87.24°	76.87° - 61.50° - 89.33°	158.8 mm / 6.2"
63.98° - 48.60° - 75.29°	68.56° - 53.97° - 80.52°	70.53° - 55.80° - 82.48°	154.9 mm / 6.1"
55.96° - 42.05° - 66.60°	60.22° - 46.85° - 71.70°	62.07° - 48.50° - 73.66°	149.3 mm / 5.8"
48.12° - 35.79° - 57.97°	52.01° - 40.00° - 62.89°	53.72° - 41.45° - 64.81°	135.9 mm / 5.3"
43.82° - 32.45° - 53.08°	47.45° - 36.31° - 57.80°	49.06° - 37.64° - 59.66°	136.7 mm / 5.4"
38.84° - 28.74° - 47.10°	42.07° - 32.16° - 51.31°	43.51° - 33.35° - 52.98°	128.4 mm / 5.0"
35.04° - 25.82° - 42.64°	38.01° - 28.94° - 46.52°	39.33° - 30.02° - 48.04°	126.9 mm / 4.9"
30.91° - 22.75° - 37.68°	33.55° - 25.51° - 41.15°	34.73° - 26.46° - 42.52°	119.5 mm / 4.7"
25.02° - 18.27° - 30.81°	27.26° - 20.53° - 33.88°	28.26° - 21.32° - 35.13°	136.1 mm / 5.3"
19.27° - 14.06° - 23.72°	20.99° - 15.80° - 26.08°	21.59° - 16.58° - 27.00°	107.3 mm / 4.2"
16.66° - 12.17° - 20.51°	18.15° - 13.67° - 22.56°	18.82° - 14.20° - 23.39°	102.5 mm / 4.0"
12.60° - 9.17° - 15.56°	13.74° - 10.32° - 17.14°	14.25° - 10.72° - 17.79°	57.2 mm / 2.2"
9.49° - 6.91° - 11.72°	10.35° - 7.77° - 12.91°	10.73° - 8.07° - 13.40°	29.9 mm / 0.098"
8.53° - 6.22° - 10.53°	9.30° - 6.99° - 11.59°	9.65° - 7.26° - 12.03°	-89.0 mm / -3.5"

Normal 35 [8] ID = 27.20 mm [7]
DIN Super 35 [9] ID = 30.00 mm [7]
ANSI Super 35 [10] ID = 31.14 mm [7]

Operation Temperature: -20°C to +40°C / -4°F to +104°F
Storage/Transport Temperature: -40C to +70°C / -40°F to +158°F

(1) Positive locking (PL) 54 mm stainless steel lens mount with Lens Data System (LDS) contacts
(2) Close focus is measured from the film/sensor plane
(3) Magnification ratio is the relationship of the size of an object on the film/sensor plane (first number) to the size of that object in real life (second number) at the close focus setting
(4) Lens length is measured from the lens mount to the front of the lens housing
(5) Diameter of the lens/matte box interface
(6) The distance from the entrance pupil to the film/sensor plane. Positive numbers indicated an entrance pupil in front, negative numbers indicated an entrance pupil behind the film/sensor plane. The entrance pupil (often mistakenly called "nodal point") is the center of perspective; moving the camera/lens system around the center of the entrance pupil prevents parallax errors. While largerly irrelevant for live action, this measurement is important for special effects work.
(7) The image diameter (ID) is the diameter of the image circle needed for the respective format. These lenses are designed for the largest ID given here.
(8) Horizontal (H), vertical (V) and diagonal (D) angles of view for a Normal 35 Academy camera aperture (aspect ratio 1.37:1, dimensions 22mm x 16mm / 0.8661" x 0.6299")
(9) Horizontal (H), vertical (V) and diagonal (D) angles of view for a DIN Super 35 Silent camera aperture (aspect ratio 1.33:1, dimensions 24mm x 18mm / 0.944" x 0.7087")
(10) Horizontal (H), vertical (V) and diagonal (D) angles of view for an ANSI Super 35 Silent camera aperture (aspect ratio 1.33:1, dimensions 24.9mm x 18.7mm / 0.980" x 0.7362")

All data subject to change without notice.

ARRI/ZEISS Ultra Prime lenses

Name	Lens Mount [1]	Aperture	Close focus [2]	Length [4]	Front diameter [5]	Weight	
							Normal 35 [6] ID = 27.20 mm [7]
Ultra Prime 8R	PL	T2.8 to T22	0.35 m / 13.8"	130 mm / 5.1"	134 mm / 5.3"	2.0 Kg / 4.4 lb	107.0°
Ultra Prime 12	PL	T2.0 to T22	0.30 m / 11.8"	140 mm / 5.5"	156 mm / 6.1"	2.0 Kg / 4.4 lb	85.2°
Ultra Prime 14	PL	T1.9 to T22	0.22 m / 8.7"	112 mm / 4.4"	114 mm / 4.5"	1.8 Kg / 4.0 lb	75.6°
Ultra Prime 16	PL	T1.9 to T22	0.25 m / 9.8"	94 mm / 3.7"	95 mm / 3.7"	1.2 Kg / 2.6 lb	70.8°
Ultra Prime 20	PL	T1.9 to T22	0.28 m / 11"	91 mm / 3.6"	95 mm / 3.7"	1.2 Kg / 2.6 lb	58.4°
Ultra Prime 24	PL	T1.9 to T22	0.30 m / 11.8"	91 mm / 3.6"	95 mm / 3.7"	1.0 Kg / 2.2 lb	50.2°
Ultra Prime 28	PL	T1.9 to T22	0.28 m / 11"	91 mm / 3.6"	95 mm / 3.7"	1.0 Kg / 2.2 lb	43.2°
Ultra Prime 32	PL	T1.9 to T22	0.35 m / 13.8"	91 mm / 3.6"	95 mm / 3.7"	1.1 Kg / 2.4 lb	38.2°
Ultra Prime 40	PL	T1.9 to T22	0.38 m /15"	91 mm / 3.6"	95 mm / 3.7"	1.0 Kg / 2.2 lb	30.6°
Ultra Prime 50	PL	T1.9 to T22	0.60 m / 23.6"	91 mm / 3.6"	95 mm / 3.7"	1.0 Kg / 2.2 lb	24.0°
Ultra Prime 65	PL	T1.9 to T22	0.65 m / 25.6	91 mm / 3.6"	95 mm / 3.7"	1.1 Kg / 2.4 lb	19.2°
Ultra Prime 85	PL	T1.9 to T22	0.90 m / 35.4"	91 mm / 3.6"	95 mm / 3.7"	1.2 Kg / 2.6 lb	15.2°
Ultra Prime 100	PL	T1.9 to T22	1.00 m / 39.4"	91 mm / 3.6"	95 mm / 3.7"	1.2 Kg / 2.6 lb	12.6°
Ultra Prime 135	PL	T1.9 to T22	1.50 m / 59.1"	119 mm / 4.7"	95 mm / 3.7"	1.6 Kg / 3.5 lb	9.3°
Ultra Prime 180	PL	T1.9 to T22	2.60 m / 102.4"	166 mm / 6.5"	114 mm / 4.5"	2.6 Kg / 5.7 lb	7.0°

Horizontal Angle of View		Entrance pupil [6]
DIN Super 35 [5] ID = 30.00 mm [7]	ANSI Super 35 [10] ID = 31.14 mm [7]	
112.0°	114.0°	155.2 mm / 6.1"
90.2°	92.6°	113.4 mm / 4.4"
80.6°	82.6°	91.3 mm / 3.5"
73.0°	75.2°	85.1 mm / 3.3"
62.8°	65.0°	73.3 mm / 2.8"
54.2°	55.8°	67.4 mm / 2.6"
46.8°	48.4°	67.3 mm / 2.6"
41.6°	43.0°	61.1 mm / 2.4"
33.2°	34.7°	59.2 mm / 2.3"
26.2°	27.2°	13.4 mm / 0.5"
21.0°	21.8°	19.0 mm / 0.7"
16.5°	17.1°	3.5 mm / 0.1"
13.7°	13.9°	12.4 mm / 0.4"
10.2°	10.5°	-56.9 mm / -2.2"
7.6°	7.9°	-19.7 mm / -0.7"

Normal 35 [8] ID = 27.20 mm [7]
DIN Super 35 [9] ID = 30.00 mm [7]
ANSI Super 35 [10] ID = 31.14 mm [7]

Operation Temperature: -20°C to +40°C / -4°F to +104°F
Storage/Transport Temperature: -40C to +70°C / -40°F to +158°F

(1) Positive locking (PL) 54 mm stainless steel lens mount
(2) Close focus is measured from the film/sensor plane
(3) Magnification ratio is the relationship of the size of an object on the film/sensor plane (first number) to the size of that object in real life (second number) at the close focus setting
(4) Lens length is measured from the lens mount to the front of the lens housing
(5) Diameter of the lens/matte box interface
(6) The distance from the entrance pupil to the film/sensor plane. Positive numbers indicated an entrance pupil in front, negative numbers indicated an entrance pupil behind the film/sensor plane. The entrance pupil (often mistakenly called "nodal point") is the center of perspective; moving the camera/lens system around the center of the entrance pupil prevents parallax errors. While largerly irrelevant for live action, this measurement is important for special effects work.
(7) The image diameter (ID) is the diameter of the image circle needed for the respective format. These lenses are designed for the largest ID given here.
(8) Horizontal angles of view for a Normal 35 Academy camera aperture (aspect ratio 1.37:1, dimensions 22mm x 16mm / 0.8661" x 0.6299")
(9) Horizontal angles of view for a DIN Super 35 Silent camera aperture (aspect ratio 1.33:1, dimensions 24mm x 18mm / 0.944" x 0.7087")
(10) Horizontal angles of view for an ANSI Super 35 Silent camera aperture (aspect ratio 1.33:1, dimensions 24.9mm x 18.7mm / 0.980" x 0.7362")

All data subject to change without notice.

ARRI/ZEISS LDS Ultra Prime lenses

Name	Lens Mount [1]	Aperture	Close focus [2]	Length [4]	Front diameter [5]	Weight	
							Normal 35 [6] ID = 27.20 mm [7]
Ultra Prime 12	PL LDS	T2.0 to T22	0.30 m / 11.8"	140 mm / 5.5"	156 mm / 6.1"	2.2 Kg / 4.8 lb	85.2°
Ultra Prime 14	PL LDS	T1.9 to T22	0.22 m / 8.7"	112 mm / 4.4"	114 mm / 4.5"	1.8 Kg / 4.0 lb	75.6°
Ultra Prime 16	PL LDS	T1.9 to T22	0.25 m / 9.8"	94 mm / 3.7"	104 mm / 4.1"	1.5 Kg / 3.3 lb	70.8°
Ultra Prime 20	PL LDS	T1.9 to T22	0.28 m / 11"	91 mm / 3.6"	104 mm / 4.1"	1.5 Kg / 3.3 lb	58.4°
Ultra Prime 24	PL LDS	T1.9 to T22	0.30 m / 11.8"	91 mm / 3.6"	104 mm / 4.1"	1.3 Kg / 2.9 lb	50.2°
Ultra Prime 28	PL LDS	T1.9 to T22	0.28 m / 11"	91 mm / 3.6"	104 mm / 4.1"	1.5 Kg / 3.3 lb	43.2°
Ultra Prime 32	PL LDS	T1.9 to T22	0.35 m / 13.8"	91 mm / 3.6"	104 mm / 4.1"	1.4 Kg / 2.1 lb	38.2°
Ultra Prime 40	PL LDS	T1.9 to T22	0.38 m /15"	91 mm / 3.6"	104 mm / 4.1"	1.4 Kg / 2.1 lb	30.6°
Ultra Prime 50	PL LDS	T1.9 to T22	0.60 m / 23.6"	91 mm / 3.6"	104 mm / 4.1"	1.2 Kg / 2.6 lb	24.0°
Ultra Prime 65	PL LDS	T1.9 to T22	0.65 m / 25.6	91 mm / 3.6"	104 mm / 4.1"	1.4 Kg / 2.1 lb	19.2°
Ultra Prime 85	PL LDS	T1.9 to T22	0.90 m / 35.4"	91 mm / 3.6"	104 mm / 4.1"	1.5 Kg / 3.3 lb	15.2°
Ultra Prime 100	PL LDS	T1.9 to T22	1.00 m / 39.4"	91 mm / 3.6"	104 mm / 4.1"	1.5 Kg / 3.3 lb	12.6°
Ultra Prime 135	PL LDS	T1.9 to T22	1.50 m / 59.1"	119 mm / 4.7"	104 mm / 4.1"	2.0 Kg / 4.4 lb	9.3°
Ultra Prime 180	PL LDS	T1.9 to T22	2.60 m / 102.4"	166 mm / 6.5"	114 mm / 4.5"	2.8 Kg / 6.2 lb	7.0°

Horizontal Angle of View		Entrance pupil [6]
DIN Super 35 [5] ID = 30.00 mm [7]	ANSI Super 35 [10] ID = 31.14 mm [7]	
90.2°	92.6°	113.4 mm / 4.4″
80.6°	82.6°	91.3 mm / 3.5″
73.0°	75.2°	85.1 mm / 3.3″
62.8°	65.0°	73.3 mm / 2.8″
54.2°	55.8°	67.4 mm / 2.6″
46.8°	48.4°	67.3 mm / 2.6″
41.6°	43.0°	61.1 mm / 2.4″
33.2°	34.7°	59.2 mm / 2.3″
26.2°	27.2°	13.4 mm / 0.5″
21.0°	21.8°	19.0 mm / 0.7″
16.5°	17.1°	3.5 mm / 0.1″
13.7°	13.9°	12.4 mm / 0.4″
10.2°	10.5°	-56.9 mm / -2.2″
7.6°	7.9°	-19.7 mm / -0.7″

Operation Temperature: -20°C to +40°C / -4°F to +104°F
Storage/Transport Temperature: -40C to +70°C / -40°F to +158°F

(1) Positive locking (PL) 54 mm stainless steel lens mount with Lens Data System (LDS) contacts
(2) Close focus is measured from the film/sensor plane
(3) Magnification ratio is the relationship of the size of an object on the film/sensor plane (first number) to the size of that object in real life (second number) at the close focus setting
(4) Lens length is measured from the lens mount to the front of the lens housing
(5) Diameter of the lens/matte box interface
(6) The distance from the entrance pupil to the film/sensor plane. Positive numbers indicated an entrance pupil in front, negative numbers indicated an ent rance pupil behind the film/sensor plane. The entrance pupil (often mistakenly called "nodal point") is the center of perspective; moving the camera/lens system around the center of the entrance pupil prevents parallax errors. While largerly irrelevant for live action, this measurement is important for special effects work.
(7) The image diameter (ID) is the diameter of the image circle needed for the respective format. These lenses are designed for the largest ID given here.
(8) Horizontal angles of view for a Normal 35 Academy camera aperture (aspect ratio 1.37:1, dimensions 22mm x 16mm / 0.8661" x 0.6299")
(9) Horizontal angles of view for a DIN Super 35 Silent camera aperture (aspect ratio 1.33:1, dimensions 24mm x 18mm / 0.944" x 0.7087")
(10) Horizontal angles of view for an ANSI Super 35 Silent camera aperture (aspect ratio 1.33:1, dimensions 24.9mm x 18.7mm / 0.980" x 0.7362")

All data subject to change without notice.

ARRI/FUJINON Alura Zooms

Name	Lens Mount [1]	Focal Length Wide	Focal Length Long	Focal Length Ratio	Aperture	Close focus [2]	Magnification ratio [3]	Length [4]	Front diameter [5]
ARRI/FUJINON Alura Zoom 15.5-45	PL LDS	15.5	45	2.9	T2.8 - T22	0.6 m / 2'0"	1 : 8.1	228 mm / 9.0"	114 mm / 4.5"
ARRI/FUJINON Alura Zoom 30-80	PL LDS	30	80	2.7	T2.8 - T22	0.6 m / 2'0"	1 : 4.9	228 mm / 9.0"	114 mm / 4.5"
ARRI/FUJINON Alura Zoom 18-80	PL	18	80	4.4	T2.6 - T22	0.7 m / 2'4"	1:5.5	285 mm / 11.2"	134 mm / 5.3"
ARRI/FUJINON Alura Zoom 45-250	PL	45	250	5.6	T2.6 - T22	1.2 m / 3'11"	1:4	370 mm / 14.6"	134 mm / 5.3"

Operation Temperature: -10°C to +50°C / 14°F to +122°F
Storage/transport Temperature: -20C to +60°C / -4°F to +140°F

[1] Positive locking 54 mm stainless steel lens mount
[2] Close focus is measured from the film/sensor plane
[3] Magnification ratio is the relationship of the size of an object on film (first number) to the size of that object in real life (second number) at the close focus and the telephoto zoom setting
[4] Length is measured from the lens mount to the front of the lens housing
[5] Diameter of the lens/matte box interface
[6] The distance from the entrance pupil to the film/sensor plane. Positive numbers indicated an entrance pupil in front, negative numbers indicated an entrance pupil behind the film/sensor plane. The entrance pupil (often mistakenly called "nodal point") is the center of perspective; moving the camera/lens system around the center of the entrance pupil prevents parallax errors. While largerly irrelevant for live action, this measurement is important for special effects work.

Maximum housing diameter	Weight	Focal Length	Angle of view H, V, D				Entrance pupil [6]
			Normal 35 [8] ID = 27.20 mm [7]	DIN Super 35 [11] ID = 30.00 mm [7]	Alexa/D-21 HD [9] ID = 27.26 mm [7]	Alexa 2K [10] ID = 29.08 mm [7]	
114 mm / 4.5"	2.2 Kg / 4.9 lb	at 15.5 mm	70.7° - 54.6° - 82.5°	74.9° - 46.7° - 82.7°	78.5° - 49.4° - 86.3°	75.5° - 60.3° - 88.1°	237.0 mm / 9.3"
		at 25 mm	47.5° - 35.5° - 57.1°	50.8° - 29.9° - 57.2°	53.8° - 31.8° - 60.4°	51.3° - 39.6° - 61.9°	230.9 mm / 9.1"
		at 45 mm	27.5° - 20.2° - 33.6°	29.6° - 16.9° - 33.7°	31.4° - 18° - 35.8°	29.9° - 22.6° - 36.9°	222.6 mm / 8.8"
114 mm / 4.5"	2.2 Kg / 4.9 lb	at 30 mm	40.3° - 29.9° - 48.8°	43.2° - 25.1° - 48.9°	45.8° - 26.7° - 51.7°	43.6° - 33.4° - 53.1°	219.3 mm / 8.6"
		at 50 mm	24.8° - 18.2° - 30.4°	26.7° - 15.2° - 30.5°	28.4° - 16.2° - 32.4°	27° - 20.4° - 33.4°	201.0 mm / 7.9"
		at 80 mm	15.7° - 11.4° - 19.3°	16.9° - 9.6° - 19.3°	18° - 10.2° - 20.6°	17.1° - 12.8° - 21.2°	187.4 mm / 7.4"
134 mm / 5.3"	4.7 Kg / 10.4 lb	at 18 mm	62.8° - 48.0° - 74.1°	67.4° - 53.1° - 79.6°	66.8° - 40.7° - 74.3°	70.3° - 43.2° - 77.9°	264.0 mm / 10.4"
		at 50 mm	24.8° - 18.2° - 30.4°	27.0° - 20.4° - 33.4°	26.7° - 15.2° - 30.5°	28.4° - 16.2° - 32.4°	231.6 mm / 9.1"
		at 80 mm	15.6° - 11.4° - 19.3°	17.1° - 12.8° - 21.2°	16.9° - 9.5° - 19.3°	18.0° - 10.2° - 20.6°	213.9 mm / 8.4"
153 mm / 6"	7.5 Kg / 16.5 lb	at 45 mm	27.5° - 20.2° - 33.6°	29.9° - 22.6° - 36.9°	29.6° - 16.9° - 33.7°	31.4° - 18.0° - 35.8°	234.4 mm / 9.6"
		at 150 mm	8.4° - 6.1° - 10.4°	9.1° - 6.9° - 11.4°	9.1° - 5.1° - 10.4°	9.7° - 5.4° - 11.1°	2.0 mm / 0.1"
		at 250 mm	5.0° - 3.7° - 6.2°	5.5° - 4.1° - 6.9°	5.4° - 3.1° - 6.2°	5.8° - 3.3° - 6.7°	-101.5 mm / -4.0"

[7] The image diameter (ID) is the diameter of the image circle needed for the respective format.
[8] Horizontal (H), vertical (V) and diagonal (D) angles of view for a Normal 35 Academy camera aperture (aspect ratio 1.37:1, dimensions 22 mm x 16 mm / 0.866" x 0.630")
[9] Horizontal (H), vertical (V) and diagonal (D) angles of view for the Alexa/D-21 HD camera aperture (aspect ratio 1.78:1, 2880 x 1620 sensor pixels, dimensions 23.76 mm x 13.37mm / 0.935" x 0.526")
[10] Horizontal (H), vertical (V) and diagonal (D) angles of view for the Alexa 2K camera aperture (aspect ratio 1.78:1, 3072 x 1728 sensor pixels, dimensions 25.34 mm x 14.26 mm / 0.998" x 0.561")
[11] Horizontal (H), vertical (V) and diagonal (D) angles of view for a DIN Super 35 Silent camera aperture (aspect ratio 1.33:1, dimensions 24 mm x 18 mm / 0.944" x 0.709")

All data subject to change without notice.

ARRI/ZEISS Master Macro

Name	Lens Mount [1]	Aperture	Close focus [2]	Magnification ratio [3]	Length [4]	Front diameter [5]
Master Macro T2.0/100 mm	PL-LDS	T2.0/T4.3 to T32	0.35 m / 13 3/4"	1:1	202.7 mm / 8"	114 mm / 4.5"

[1] Positive locking 54 mm stainless steel lens mount with Lens Data System (LDS) contacts
[2] Maximum aperture at infinity is T2.0, at close focus T4.3
[3] Close focus is measured from the film/sensor plane
[4] Magnification ratio is the relationship of the size of an object on the film/sensor plane (first number) to the size of that object in real life (second number) at the close focus setting
[5] Lens length is measured from the lens mount to the front of the lens housing
[6] Diameter of the lens/matte box interface. Maximum lens housing diameter for the Master Macro 100 is 138 mm.
[7] Horizontal angle of view for an ANSI Super 35 Silent camera aperture (aspect ratio 1.33:1, dimensions 24.9mm x 18.7mm / 0.980" x 0.7362")
[8] Horizontal angle of view for a DIN Super 35 Silent camera aperture (aspect ratio 1.33:1, dimensions 24mm x 18mm / 0.944" x 0.7087")

Weight	Horizontal Angle of View			Entrance pupil [6]
	Normal 35 [8] ID = 27.20 mm [7]	DIN Super 35 [9] ID = 30.00 mm [7]	ANSI Super 35 [10] ID = 31.14 mm [7]	
2.6 kg / 5.7 lbs	12.42°	13.52°	14.02°	-77.139 mm / -3.0"

[9] Horizontal angle of view for a Normal 35 Academy camera aperture (aspect ratio 1.37:1, dimensions 22mm x 16mm / 0.8661" x 0.6299")

[10] The image diameter (ID) is the diameter of the image circle needed for the respective format. The Master Macro 100 is designed for the largest ID given here (ANSI Super 35).

[11] The distance from the entrance pupil to the film/sensor plane. Positive numbers indicated an entrance pupil in front, negative numbers indicated an entrance pupil behind the film/sensor plane

The entrance pupil (often mistakenly called „nodal point") is the center of perspective; moving the camera/lens system around the center of the entrance pupil prevents parallax errors. While largerly irrelevant for live action, this measurement is important for special effects work.

All data subject to change without notice.

Resources and Contacts

ARRI Sales Contacts

Europe, Middle East, Africa, India

Arnold & Richter Cine Technik
GmbH & Co. Betriebs KG
(Headquarters, Sales & Service)
Türkenstraße 89, 80799 Munich, Germany
salessupport@arri.de
Tel: +49 (0)89 3809 1295, Fax: +49 (0)89 3809 1245

ARRI Italia S.r.l. (Sales & Service, Milan)
Viale Edison 318, 20099 Sesto San Giovanni
(Milano), Italy
General Manager: Antonio Cazzaniga,
acazzaniga@arri.it
Tel: +39 (02)262 271 75, Fax: +39 (02)242 1692

Americas

ARRI Inc. (Sales & Service)
600 North Victory Blvd., Burbank,
CA 91502-1639, USA
Vice President, Camera Products:
Bill Russell, brussell@arri.com
Tel: +1 (818)841 7070, Fax: +1 (818)848 4028

ARRI Inc. (Sales & Service)
617 Route 303, Blauvelt,
NY 10913-1109, USA
Technical Sales Representative:
Guenter Noesner, gnoesner@arri.com
Tel: +1 (845)353 1400, Fax: +1 (845)425 1250

ARRI Inc. (Sales Latin America)
Vice President, Sales Latin America
Roger Dean, RDean@arri.com
2385 Stirling Road, Fort Lauderdale, FL 33312, USA
Technical Sales Representative:
Jeffrey Reyes, jreyes@arri.com
Tel: +1 (954)322 4545, Fax: +1 (954)322 4188

ARRI Canada Limited (Sales & Service)
415 Horner Ave. Unit 11 & 12, Toronto,
Ontario M8W 4W3, Canada
Accounts Manager, Camera & Digital Systems:
Sébastien Laffoux, seb@arrican.com
Tel: +1 (416)255 3335, Fax: +1 (416)255 3399

Asia

ARRI Asia Limited
2203B, The Centrium, 60 Wyndham Street,
Central, Hong Kong
Managing Director : Paul Ivan, pivan@arriasia.hk
Tel : +852 2571 6288, Fax : +852 2875 9181

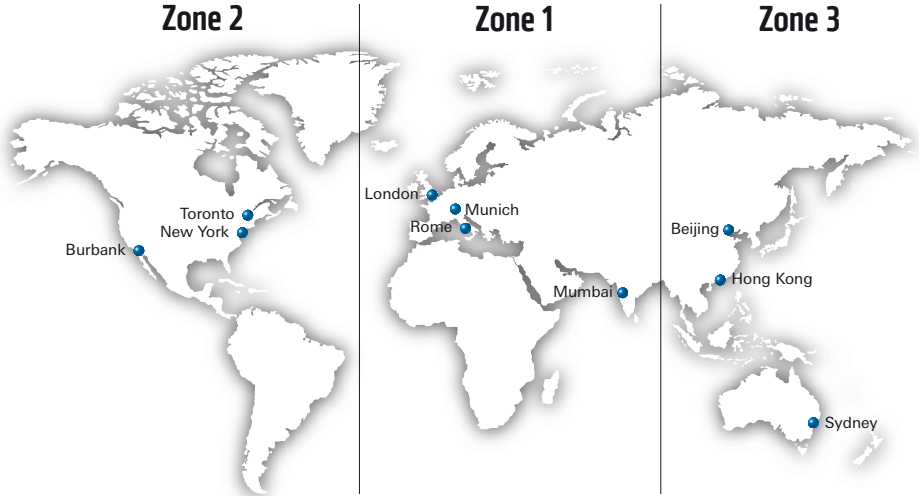
ARRI China (Beijing) Co. Ltd.
Chaowai SOHO Tower C, 6/F, 0628/0656
Chaowai Dajie Yi 6, Beijing, China
General Manager: Forest Liu, fliu@arrichina.com
Tel : +86 10 59009680, Fax : +86 10 59009679

Australia / New Zealand

ARRI Australia Pty Ltd
Level 1, Unit 1, 706 Mowbray Road,
Lane Cove NSW 2066, Sydney, Australia
General Manager: Stefan Sedlmeier,
ssedlmeier@arri.com.au
Tel: +61 2 9855 4300, Fax: +61 2 9855 4301

ARRI Service Contacts

Zone	Availability	Service Center	E-Mail	Telephone Hotline
1	Monday – Friday: 09:00 – 17:00 (CET)	**Munich, Germany** Arnold & Richter Cine Technik	service@arri.de	+49 89 3809 2121
	Monday – Friday: 09:00 – 17:30 (CMT)	**London, Great Britain** ARRI CT Limited	service@arri-ct.com	+44 1895 457 051
	Monday – Friday: 09:00 – 18:00 (CET)	**Rome, Italy** ARRI Italia S.r.l.	service@arri.it	+39 335 749 00 70
	Monday – Saturday: 10:00 – 18:00 (IST)	**Mumbai, India** CINEOM Broadcast India Pvt. Ltd.	service@cineom.com	+91 (0) 22 42 10 9000
2	Monday – Friday: 08:15 – 17:00 (PST)	**Burbank, USA** ARRI Inc. West Coast	service@arri.com	+1 877 565 2774
	Monday – Friday: 08:00 – 17:30 (EST)	**New York, USA** ARRI Inc. East Coast	service@arri.com	+1 877 565 2774
	Monday – Friday: 08:30 – 17:00 (EDT)	**Toronto, Canada** ARRI Canada Limited	service@arri.com	+1 416 255 3335
3	Monday – Friday: 09:00 – 18:00 (HKT)	**Hong Kong** ARRI Asia Limited	service@arriasia.hk	+852 2537 4266
	Monday – Friday: 09:00 – 18:00 (CST)	**Beijing, China** ARRI China Co. Limited	service@arrichina.com	+86 10 5900 9680
	Monday – Friday: 08:00 – 18:00 (AEST)	**Sydney, Australia** ARRI Australia Pty Limited	service@arri.com.au	+61 2 9855 4305



ARRI Service is the first port of call for all questions concerning not only the ALEXA cameras, but all ARRI cameras ever made, with worldwide service centers and 24h availability on Monday to Friday.

Well trained technicians cover all hardware- and software-related issues, upgrades or e.g. the recovery of cards that have been accidentally erased.

ARRI Digital Workflow Solutions

The Digital Workflow Solutions (DWS) group deals with all workflow related issues including ARRI Look File handling, data copying, backups, quality check, LUTs, metadata or working with Log C files. In addition the DWS group provides support for such tools as the ARRIRAW Converter, ARRI Look Creator, ARRI LUT Generator and ALEXA Frameline Composer.

Feel free to contact DWS at digitalworkflow@arri.de

This ARRI ALEXA Pocket Guide (Ident.-Nr.: K5.40980.A) is published by Arnold & Richter Cine Technik, April 01, 2012 © ARRI/2012
Technical data and offerings are subject to change without notice. All rights reserved. Without any warranty. Not binding 04/2012.
ARRI is a registered trademark of Arnold & Richter Cine Technik GmbH & Co. Betriebs KG.

Arnold & Richter Cine Technik GmbH & Co. Betriebs KG · Türkenstrasse 89 · D-80799 Munich
tel +49 (0)89 3809 0 · fax +49 (0)89 3809 1245 · www.arri.com

Online Resources

ALEXA Pocket Guide WebApp	www.arri.com/alexa/apg
ALEXA Data Sheets	www.arri.com/alexa/downloads
ALEXA Dimensions	www.arri.com/alexa/downloads
ALEXA Manual	www.arri.com/alexa/downloads
Frequently Asked Questions	www.arri.com/alexa/learn
ALEXA Software Update Packets	www.arri.com/alexa/downloads
Technical details on recording	
ARRIRAW	www.arri.com/alexa/arriraw
ProRes	www.arri.com/alexa/sxs
DNxHD	www.arri.com/alexa/sxs
ALEXA Camera Simulator	www.arri.com/alexa/tools
ALEXA Frameline Composer	www.arri.com/alexa/tools
ALEXA LUT Generator	www.arri.com/alexa/tools

ALEXA Pocket Guide WebApp

www.arri.com/alexa/apg